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ORIGINAL ARTICLES.

ORTHOPEDIC SURGERY AS A SPECIALTY.

The President's Address, delivered before the American Orthopedic Association at Washington, D. C., Sept. 22, 1891.

BY A. B. JUDSON, M.D.,

OF NEW YORK.

A flourishing medical society sometimes divides into Sections. It is an involuntary process, or at least one to which the members are forced by the necessity of thoroughly accomplishing the objects of the society. The process may be called an analysis. In the present instance, however, if I understand the organization of the Congress of American Physicians and Surgeons, we have a synthesis. A number of societies voluntarily combine to secure ends which were not contemplated at the beginning of each. A division of labor having been made, according to which each society has its special work to do, it is proper and useful for the societies to meet together for co-operation. Let us, therefore, briefly consider some of the salient features which mark our specialty of orthopedic surgery. A better knowledge of ourselves will put us in more quick relation with other workers, both general and special, and enable us better to do our humble part in the grand plan.

In common with other specialists we occasionally hear that we are limited in the possible range of our achievements. The limitation is, however, entirely voluntary, and the work within these limits is practically inexhaustible. If we were not so busy, we might perchance be troubled because we are not always and exactly understood. The sign before an orthopedic hospital in New York is supposed by some of the passers-by to indicate a homœopathic institution. I am probably not alone in having been asked to perform the minor surgical operations of the chiropodist. Many, even among the learned, suppose that the latter part of our name is derived from the Latin word for *foot*, instead of from the Greek for *child*. We are also confounded in the minds of some with the instrument-makers. I mention these things in passing, without a serious thought. If they exist, like morning mist, they will pass away.

It is well, however, to recognize the fact that our practice is comparatively lacking in popular qualities. We have no critical, capital, or brilliant operations. What of brilliancy is there in keeping a limb in such an attitude that the weight of the body in locomotion shall be a favorable, instead of an unfavorable agent, until the natural growth of the member results in comparative symmetry; or in controlling the environment of the diseased joint and the patient, so that the natural processes of recovery and repair shall have their triumph, while the limb is daily growing in symmetry and ability with the growing child? This is not bold surgery, but there is great pleasure in watching and reverently assisting these constantly recurring natural miracles. And will any of us forget the delightful friendships made among our little patients, their pretty bashfulness, their ready confidence, their irrepressible cheerfulness, their graceful acceptance of what is, alas, inevitable? The combination in them of childish and heroic qualities is a daily wonder. To watch them at play is like a dream in which the birds and wild flowers are enacting a tragedy and improving the precepts of Stoic philosophy.

Our practice is not only lacking in brilliant achievements, but it is also uninviting, because, as a rule, our patients do not make absolute recoveries. There is always, or nearly always, a residuum of disability and deformity, and in this is to be found, perhaps, one reason why our specialty has existence; for what general practitioner would lightly assume the care of a case so exceptional in his practice, and so momentous as those which fall into our specialty?

The why and the wherefore of specialties, in general, and ours, in particular, are questions of interest. Some will say that we have a natural aptitude for mechanics, an inherited preference for slow and sure methods, compared with those that are quick and uncertain, or an inborn reverence for what is physically demonstrable. These personal characteristics may explain why some of us are orthopedists, but I believe the reason why our specialty exists and thrives is to be found in the desire of the public, the final arbiter, that experts should be invited to bear the responsibility of orthopedic cases.

One very attractive feature of orthopedic practice is its *reality*—for want of a better word. It is especially the domain of physical demonstration, where the acceptance of pathological doctrine, as well as therapeutic precept, must be preceded by absolute proof. Here subjective symptoms are forgotten in the presence of objective signs. The data for diagnosis are visible, palpable and measurable. Treatment is by forces whose action is nicely directed, increased, diminished, and accurately measured. The very weight of the body is duly considered in trauma and therapeutics, and finally the results of treatment are recorded in degrees of a circle and fractions of an inch. Dealing thus, as we do, with physical realities, it is well for us to keep our eyes open to the moral verities also, which no less form part of the tissue of our daily professional work. Let us remember that diligence is the price of success, and that the only desirable success is that which is reached by the rejection of error and the loyal recognition of truth.

Since our last meetiug, there has occurred the death of one of our Corresponding Members, whose hostility to error might in all friendly criticism be called intemperate—one whose diligence and devotion to the interests of his patients make him an exemplar worthy of our affectionate remembrance. But I will not trespass on the subject of the first paper of our session, which is by Dr. A. J. Steele, of St. Louis, on the orthopedic work of the late Mr. Thomas, of Liverpool.

FLUORESCEIN AND FLUORESCIN.

Read in the Section of Ophthalmology, at the Forty-second Annual Meeting of the American Medical Association, held at Washington, D. C., May 5-8, 1891.

BY FRANK TRESTER SMITH, A.M., M.D.,
OF CHATTANOOGA, TENN.

These recent additions to our materia medica are closely allied chemically, both being products in the distillation of coal tar.

They are of use from their faculty of coloring abraded surfaces of the cornea, thus enabling us to locate such abrasions rapidly and accurately. To the oculist this is of but little assistance, as he can readily diagnose these conditions by the methods now in use, and yet in some cases it is of assistance even to him, as in the extraction of small foreign bodies where we must get the substance between us and the iris, or against the black pupil. In these cases, the green ring around the offending material enables us to see it in any position. Likewise, in cases where we have much photophobia, we can tell more quickly and easily to what extent the cornea is involved.

In no other condition than that of abrasion of the cornea is any effect seen, and the action of the solution is limited to the corneal tissue.

Thus, it will discolor the cornea in traumatisms with or without a foreign body being present, and in ulcers of the cornea. In interstitial keratitis it has no effect, also in inflammations of the other structures of the eye. In two cases of glaucoma no effect was produced, as has been claimed by some.

From the foregoing, it will be seen that it will be most serviceable to the general practitioner who is not accustomed to these cases.

Another use to which I want to call your attention especially, and to which I have seen no reference in any of the articles that have been published on this subject, is in testing whether a stricture of the nasal duct is impervious or not. The needle of a Knapp's lachrymal syringe is inserted into the punctum, and the solution forced through the canaliculus into the lachrymal sac. If there is the least opening through the stricture, some of the green solution will be found in the nose and can be blown out on the handkerchief. The diagnosis is thus much easier than when a clear solution is used.

Its use has been suggested as a sign of death, as the cornea of the dead will take the staining, while that of the living will not, except in the conditions before mentioned, and then the cornea would be but partially discolored.

Most writers have used only fluorescein, and some have failed to get the effect from fluorescin, but in my experiments I have not been able to see any difference between the two drugs.

Fluorescein is a light brownish-yellow powder, insoluble in cold, very slightly soluble in hot water, but more freely soluble in an alkaline solution; the addition of gr. vijss sodium bicarb. dissolving 10 grs. in an ounce of water. This is the solution in common use. It is of a dark brown color. The addition of water turns it green, and from the surface we get a beautiful fluorescence.

Fluorescein is manufactured by heating resorcin and phtalic anhydride to 195° or 200° C. (385° to 392° F.). It is of acid reaction. When freshly precipitated it is readily soluble in ether and alcohol, not so easily when crystallized. Acids may be present as impurities, and are readily detected by greater solubility.

Fluorescin is a yellow powder made by heating fluorescein with a solution of caustic soda and zinc dust. In solubility it is similar to fluorescein, into which it is readily converted by oxidizing agents.

Gr. vjss sodium bicarb. dissolves gr. x in an ounce of water. The solution is dark brown and turns green on the addition of water, with fluorescence. Its behavior on the abraded cornea is exactly similar to that of fluorescein.

In conclusion I would say that we have here agents of some value, especially to those not accustomed to eye affections.

The solutions are not painful in the least, either to the normal or to the inflamed eye. They are also non-irritating. I have used them in cases where the eyes were so irritable that no solution (except salt water or a solution of boracic acid) could be borne without pain and increased redness, and there was not the slightest irritating effect.

There are no bad after-effects. The coloring matter is gradually diffused through the corneal tissue and absorbed, this taking from one to several hours according to its amount.

They are of value only in diagnosticating corneal abrasions (ulcers, foreign bodies, abrasions), while in other affections their effect is *nil.*

As a sign of death the solutions may have a proper place.

In testing the permeability of strictures of the nasal duct it is of assistance.

In my experiments I am indebted to Mr. F. Voigt and to Dr. R. L. Randolph for courtesies shown. Mr. Voigt worked out the solubilities and furnished the facts concerning the pharmacology of the drugs.

AN EXPERIMENTAL STUDY OF THE COMPARATIVE MYDRIATIC EFFECT OF ATROPIA AND HOMATROPIA.

Read in the Section on Ophthalmology, at the Forty-second Annual Meeting of the American Medical Association, held at Washington, D. C., May, 1891.

BY HORACE M. STARKEY, M.D.,
OF CHICAGO, ILL.

Among the notable "anomalies of refraction" in the few years just past is the great divergence of opinion among ophthalmologists as to the comparative reliability of atropia and homatropia as mydriatics. It has been surprising to read the varying statements of different well-qualified observers as to the effect produced by the former of these agents; and particularly surprising is it to those who use homatropia with satisfaction to themselves and to their patients to find this drug pronounced absolutely unreliable. It is unnecessary to mention particular articles on the subject. We all recall many such. We also, many of us, recall the discussions that have occurred in this Section for several years past, and particularly at the meeting last year, when the discussions constantly returned to two topics, upon each of which the greatest diversity of opinion existed — namely, the advisability of correcting low degrees of astigmatism and the value of homatropia. On the latter question the members present seemed to be about equally divided between three opinions, all maintained with equal positiveness and tenacity. The first held that for suspending accommodation homatropia is utterly unreliable, and never should be used; the second, that it is generally reliable, and may, in practically all cases, be used instead of atropia; while the third held the intermediate ground that while homatropia has a wide range of usefulness, there is quite a proportion of cases in which it is insufficient to paralyze accommodation. At that time the writer mentioned an anomalous case occurring in his own practice in which atropia, used thoroughly for a week, failed to relax accommodation, and in which the additional use of homatropia four or five times within an hour caused entire suspension of that function.

These opinions cannot all be correct, and it would seem that sufficient careful experiment and observation should definitely settle the value of this or any drug. There is no doubt as to the superior availability of homatropia in diagnosis if only it can be used with certainty.

To assist in establishing the place which homatropia should hold as a mydriatic, the writer has, during the past year, made a number of careful observations.

These observations have been made upon young patients seen in private practice, and for the most part upon cases presenting the most difficult features for examination.

A few of these, owing to the short stay of the patient in the city, or from some other unavoidable cause, are not as complete as desired, but in every case, so far as the observation extended, it was made with great care and conscientiousness.

Each observation was made as follows: At the first visit of the patient the usual record was made of the condition of eyes and appendages, apparent refraction, vision, and whether the latter could be improved by lenses or not, etc.

The eyes were then subjected to the influence of homatropia. For this purpose a fresh 1 per cent. solution was employed, and of this, one drop was instilled into each eye five times in the course of fifty minutes, and the examination commenced in one hour from the time of first instillation. A record was made of the time of each instillation, and of the time of commencing the examination. The second instillation was made about five minutes after the first; the third about fifteen minutes; the fourth twenty-five minutes, and the fifth fifty minutes after the first, the examination being commenced about ten minutes after this last. A record was made of the state of the refraction, and the patient directed to return the next day. In the meantime, a drop of atropia sulph. solution, strength four grains to the fluid ounce, was to be instilled in each eye two times that evening, about three hours apart, and again two times the next morning, with the same interval.

When practicable, the atropia solution was continued for two or three days, with daily notings of condition of refraction, and in some cases, where there were other indications for atropia, this was continued for several weeks.

TABLE OF CASES.

No.	Age.	Sex.	Condition for which Relief is Sought.	Vision. Rt.	Vision. Left.	Apparent Refraction. Right.	Apparent Refraction. Left.	Hom. Used.	Refraction Under Homatropia. Right.	Refraction Under Homatropia. Left.
1	21	M.	Strabismus	20/70	20/20	H.M. 2 D.	H.M. 2 D . .	June 4.	H. 2.25.	H. 2.50.
2	12	F.	Eye-strain	20/40	20/40	M. 1.	M. 1.	June 17.	H. 1.50.	H. 1.75, Ha. 0.50 @ 180.
3	18	M.	Strabismus	20/30 +	20/200	H.M. 1.50 . .	? . . .	June 20.	H. 1.75.	H. 1.50.
4	21	M.	Strabismus	20/200	20/20 +	? . . .	H.M. 1. . . .	June 28.	?	H. 0.75, Ha. 0.25 @ 180.
5	14	F.	Eye-strain.	20/30 —	20/200 —	H.M. 1 . . .	? . . .	July 8.	H. 1.50, Ha. 0.50 @ 180°	Ha. 2 @ 180, Ma. 3 @ 90.
6	21	F.	Eye-strain.	20/30	20/30	H.M. 0.50 . .	H.M. 0.50 . .	July 11.	Ma. 1 + 90	Ma. 0.75 + 90.
7	30	M.	Eye-strain, periodical strabismus.	20/200	20/70	? . . .	? . . .	July 19.	Ha. 0.50, @ 180. Ma. 3 @ 90.	Ha. 2 @ 15, Ma. 2 @ 105.
8	13	M.	Strabismus	20/70	20/30	H.M. 1.50 . .	H.M. 1.50 . .	August 16.	H. 2.50.	H. 4.
9	17	F.	Myopia & eye-st'n	1/30	1/20	M. 14.	M. 11	August 28.	M. 12.	M. 10.
10	10	M.	Headache.	20/20	20/20	?	? . . .	Sept. 17.	H. 0.75, Ha. 0.37 @ 180.	H. 0.50, Ha. 0.37 @ 180.
11	16	M.	Strabismus	20/30	20/30	H.M. 1. . . .	H.M. 1.50 . .	Sept. 17.	H. 4.	H. 5.50.
12	26	F.	Eye-strain.	20/30	20/70	H.M. 1.50 . .	H.M. 1.25 . .	Oct. 17.	H. 5.	H. 4.
13	12	F.	Strabismus	Light	20/40	? . . .	H.M. 1. . . .	Oct. 28.	?	H. 1.50.
14	24	F.	Strabismus	20/50	20/20 —	H.M. 1. . . .	H.M. 1. . .	Nov. 28.	H. 1.	H. 1.
15	11	F.	Strabismus (Sisters.)	1/100	20/30	? . . .	H.M. 0.75 Ha. 0.37 @ 180	Dec. 2.	H. 4.50.	H. 4.50, Ha. 0.37 @ 180.
16	7	F.	Strabismus (Sisters.)	20/70	20/50	H.M. 2. . . .	H.M. 3. . . .	Dec. 2.	H. 3.	H. 3.50, Ha. 1 @ 180.
17	18	M.	Strabismus	20/40	20/30 —	? . . .	? . . .	Jan. 2.	H. 0.75, Ha. 0.25 @ 165.	H. 0.75, Ha. 0.25 @ 15
18	27	F.	Headache.	20/30	20/30	? . . .	? . . .	Jan. 22.	H. 1.25.	H. 1.25.
19	25	F.	Headache.	20/20	30/30	H.M. 0.75 . .	H.M. 0.75 . .	Feb. 5.	H. 0.75.	H. 0.75.
20	20	F.	Headache and eye-strain.	20/200	20/40	? . . .	? . . .	March 3.	H. 3.50.	H. 2.75.
21	10	F.	Strabismus	20/30 —	20/40	H.M. 1.25 . .	H.M. 1.25 . .	March 9.	H. 3.	H. 2.75.
22	27	F.	Eye-strain & strabismus.	20/70 +	20/70	H.M. 1. . . . Ha. 0.50. . .	H.M. 1.25 Ha. 0.50.	Jan. 7.	H. 1, Ha. 0.50 @ 180.	H. 1.50, Ha. 0.50 @ 180.
23	23	F.	Eye-st'n and strab.	20/100 +	20/40 —	H.M. 3. . . .	H.M. 3. . . .	March 19.	H. 6, Ha. ?.	H. 7, Ha. 1.25 @ 145.
24	27	F.	Eye-strain.	20/50 —	20/50 —	M. 0.75. . . .	M. 2.	March 19.	Ha. 0.75 @ 180. Ma. 1.75 @ 90.	Ha. 0.50 @ 180. Ma. 2.25 @ 90.
25	16	M.	Strabismus	Fin'rs 2 feet.	20/30	? . . .	H.M. 1.25 . .	April 18.	?	H. 5.50.

NOTE.—When ? sign is placed, vision was not improved by any glass.

The state of refraction was in each case determined by the glass giving the most distinct vision at twenty feet, with good and uniform illumination, usually controlled by ophthalmoscopic and keroscopic tests.

This method of observation was chosen as being, on the whole, with intelligent patients, less open to objections than any other, the possibility of the physician's bias being likely to invite criticism in ophthalmoscopic and other objective tests.

This report covers twenty-five consecutive cases tested in this way — all that time and opportunity permitted in the time included. The writer is not unmindful that similar experiments have been made and reported, but not in sufficient numbers nor with sufficient exactness and detail to carry conviction to the majority of ophthalmologists.

The effects produced by homatropia in these experiments have been a surprise to the experimenter, as they were not expected.

In the table of cases presented, the following points are noted: 1. Number in the series; 2. Age; 3. Sex; 4. Condition for which relief is sought; 5. Vision of each eye; 6. Apparent refraction; 7. Date of use of homatropia; 8. Refraction exhibited under homatropia; 9. Remarks, noted at the time of making examination under homatropia; 10. Time of use of atropia; 11. Refraction under atropia; 12. Subsequent use of atropia, and remarks on the case; 13. Final vision.

ANALYSIS.

For purposes of comparison, the cases are divided into four groups:

1. Those in which there was no difference in the effect produced by homatropia and atropia, fourteen cases, or 56 per cent., viz.: Nos. 2, 3, 8, 9, 10, 11, 12, 14, 16, 17, 19, 21, 22 and 24. Of these, circumstances did not permit observations after the use of atropia longer than twenty-four hours in cases 3, 9, 10 and 11.

2. Those in which the use of atropia for twenty-four hours showed a diminution of refraction, without further change by longer continuance of atropia, two cases, or 8 per cent., viz.: No. 4, which developed 0.25 D. additional Ha. and No.

TABLE OF CASES.

Remarks.	Atropia Used.	Refraction under Atropia. Right.	Left.	Remarks.	Final Vision. Rt.	Left.
. . . . .	June 5, 6.	H. 2.25.	H. 2.25.	June 10, H. 2.50; June 13, H. 3; June 21, same.	20/40	20/20
. . . . .	June 17, 18.	No change.	No change.	June 30, no change.	20/40	20/30
Do not think accommodation relaxed.	June 20, 21.	No change.	No change.	Patient passed from observation. . .	20/15	20/40
Same as above	June 28, 29.	?	H. 0.75, Ha. 0.50 @ 180.	July 9, no change.	20/200	20/15
. . . . .	July 10, 11.	H. 1.50, Ha. 0.75 @ 180.	Ha. 2 @ 180, Ma. 2.25 @ 90.	July 18, R. H. 1.25 ⌒ Ha. 1 @ 180. L. Ha. 2.50 @ 180, Ma. 1.50 @ 90. July 22 same.	20/20 +	20/50
. . . . .	July 13, 14.	Ha. 0.50 @ 180. Ma. 1 @ 90.	Ma. 1 @ 90.	July 18, R. Ha. 0.75 @ 180, Ma. 0.50 @ 90. L. Ma. 1 @ 90. July 21, same.	20/20 +	20/20
Not relaxed?	July 19, 20.	Ha. 0.75 @ 180. Ma. 3 @ 90.	Same as homatropia.	July 22, R. Ha. 0.75 @ 180, Ma. 3.50 @ 90. L. some as previously noted.	20/50	20/30
. . . . .	Aug. 16, 17.	No change.	No change.	Sept. 10, no change.	20/40	20/30
. . . . .	Aug. 28, 29.	No change.	No change.	. . . . .	20/50	20/40
. . . . .	Sep. 17, 18.	No change.	No change.	Glasses give entire relief from headache.	20/20	20/20
. . . . .	Sep. 17, 18.	No change.	No change.	No opportunity for later tests . . .	20/30	20/50 —
Should not pres. glasses without atropia.	Oct. 19, 20.	No change.	No change.	October 28, no change.	20/30	20/50
Not relaxed?	Oct. 28 to Nov. 1.	?	H. 2.25.	November 11, no change.	?	20/30
. . . . .	Nov. 28, 29.	No change.	No change.	December 4, no change.	20/50	20/20
. . . . .	Dec. 2—3 .	No change.	H. 5, Ha. 0.37 @ 180.	Jan. 1, habitual strabismus relieved.	20/100	20/20 —
. . . . .	Dec. 2—3 .	No change.	No change.	Jan. 1, no change.	20/50	20/50
. . . . .	Feb. 23, 24.	No change.	No change.	March 4, no change.	20/20	20/20 —
. . . . .	Jan. 22, 23.	No change.	No change.	Jan. 29, R. and L., H. 1.50	20/20 +	20/30 +
Do not think relaxation complete.	Feb. 5, 6.	No change.	No change.	February 9, no change.	20/30 +	20/30 +
. . . . .	Mar. 3, 4.	No change.	No change.	March 9, no change.	20/30	20/30 +
. . . . .	Mar. 9, 10.	H. 3.50.	H. 3.50.	March 30, R. and L., H. 4.	20/25	20/25
. . . . .	Jan. 7, 8.	No change.	No change.	January 11, no change	20/20 —	20/20 —
Sees better with slip vert., but not imp'd by cylinder.	Mar. 19, 20, and 21.	H. 6, Ha. 1.25 @ 35.	H. 7, Ha. 1.25 @ 145.	March 23, no change	20/30 —	20/30 +
Not relaxed.	Mar. 19, 20.	No change.	No change.	March 23, no change	20/20 —	20/20 +
. . . . .	Apr. 19, 20.	No change.	No change.	April 25, H. 6. April 30, same . . .	?	20/25 +

15, in which 4.50 DH. was changed to 5 DH. in one eye.

3. Those in which the use of atropia for twenty-four hours showed no change from the relaxation produced by homatropia, but in which change developed by longer use of atropia, three cases, or 12 per cent., viz.: Nos. 1, 18 and 25.

4. Those in which there was change from homatropia to atropia used twenty-four hours, but in which there was additional change by longer use of atropia, four cases, or 16 per cent., viz.: Nos. 5, 6, 7 and 21.

Cases 13 and 23 do not come under either of these heads. In 13 it was obvious at the examination that homatropia was insufficient.

The patient, however, did not return for four days, using atropia all this time, when accommodation was entirely relaxed, making manifest 0.75 D. additional H. In 23, while astigmatism was evident at the first examination, no cylinder was found that materially improved vision, this being but $\frac{20}{100}$. Atropia was used two days before the patient returned, when 1.25 D. Ha. was found, in addition to the 6 D. previously noted.

Atropia being employed immediately after homatropia in these cases, may have given the former of an advantage.

It would be interesting to study the effect of homatropia after twenty-four hours' use of atropia; the effect of homatropia on several successive days, etc.

This is not a sufficient number from which to draw definite conclusions or generalizations, and none are attempted.

They are given as statements of fact in the hope that others will continue the observations, and that in this way such data will be presented as shall definitely settle the place of homatropia.

MALNUTRITION is the key-note to many disorders of childhood. Not only such obvious forms of malnutrition as the marasmus of diarrhœa, and the wasting of phthisis, should be noted, but also rickets in its frequently overlooked incipient forms, scurvy, and a host of troubles characterized by anæmia, flabbiness, inactivity, chorea, sweating and other neuroses should receive attention. Most of these yield to *proper* dietetic measures.

FIBRO-SARCOMA OF THE NECK WITH TEMPORARY OPHTHALMOPLEGIA EXTERNA AND SYMPATHETIC PARALYSIS.

Read before the Section of Ophthalmology of the American Medical Association, at its Meeting in Washington, D. C., May, 1891.

BY H. V. WÜRDEMANN, M.D.,
OF MILWAUKEE, WIS.

J. F., aged 14, a student in the gymnasium of one of the theological schools in Milwaukee, a minister's son, German parentage, referred to me by Dr. D. J. Hayes, consulted me about a protrusion of the eyeball and double vision. The cervical lymphatics of the left side began to enlarge about eight months before and the swelling increased rapidly until at present it is the size of a large orange. There has been no particular pain or illness until a few days before, when Dr. Hayes was called to examine and prescribe for him on account of ill defined symptoms, among them headache and general malaise. The doctor kindly referred the case to me for treatment of the eye. The patient had been seeing double for several days and the eyes were observed to diverge since three days ago.

Upon examination I found a large nodulated tumor of the left cervical region which had pushed the trachea to one side. The left side of the face was flushed and seemed warmer than the right. Complete ptosis existed, the lid falling to lower edge of the pupil, which was contracted and did not respond to light or shade. The eyeball was directed downwards and outwards and away from the median line, making an external squint of about 35°. The conjunctival vessels were flushed. Ophthalmoscopic examination showed the veins more tortuous and fuller than on the papilla of the other side. The tension was slightly lowered, being T. — 1. The accomodation seemed partially affected, the near point being at 75 cm. while that of the other eye was 12 cm. V. R. E. $\frac{6}{6}$; V. L. E. $\frac{6}{12}$. Examination of the refraction showed him about one diopter hyperopic in both eyes. He complained of a dull continuous headache and seemed stupid. Through the kindness of Dr. S. F. French, who took the excellent photograph I present, I am enabled to show the general appearance of the patient upon the day of the first examination.

The eye was bandaged and the patient directed to take hot baths and rest. To my surprise in four days the squint was lessened to about 20°, the eyeball was less prominent and he could raise the lid above the level of the pupil with an effort. The pupil was still contracted and could only be partially enlarged by homatropin. The fundus appeared about the same and the accommodation seemed likewise. The temperature of the affected side was yet warmer to the touch and more flushed than the other. He said that the headache did not trouble him as much, and in the examination he seemed less confused. In one week from the time that I first saw the case the eyes were straight, although double images could still be elicited. I had examined the patient on several occasions, on each of which no trouble of the accommodation could be found. The pupil was still more contracted than that of the other side. V. R. E. $\frac{6}{6}$; V. L. E. $\frac{6}{6}$. Tension normal. The temperature of both sides seemed the same. The tumor appeared larger but softer.

About this date Dr. Hayes injected a portion of the growth with cocaine and removed a little for microscopic examination. Dr. H. V. Ogden made the sections and reported that the sample showed scattered sarcomatous elements with fibrous tissue in preponderance. Several days later the largest nodule of the growth being very soft was opened and removed.

I had hoped to give a photo-micrograph of the section, but I am informed that the specimen has been lost. I saw the patient a month afterwards when he had binocular vision and the eye appeared normal with the exception of slight myosis and ptosis. The pupil responded slowly to light. As an operation on such a large growth, involving such important structures, was not deemed advisable, the boy was sent to his home in the country. His father wrote to Dr. Hayes some six weeks later that the eye remained in about the same condition as last stated. The tumor of the neck was slightly larger and firmer and the sinus was healed. At present writing, nine months from date of first examination, the boy is yet alive. The tumor has broken down in places and discharges through several sinuses.

It seems to me that the eye symptoms were

not incidental, but directly attributable to the pressure of the cervical growth upon the sympathetic nerve. The boy had suffered no exposure previous to the ocular affection and was carefully watched during its course.

There was no co-existing catarrhal disease or any other symptom that might lead one to suspect that the trouble was due to cold. I trace the progress of the disease in the following way: The cervical growth produced an interference of the functions and finally paresis of the sympathetic through pressure upon its trunk. This was the cause of the myosis and of part of the ptosis, the former being due to paralysis of the radiating muscular fibres of the iris, which are under the control of the sympathetic,[1] and the latter to the implication of the M. Palpebralis Superior, or Müller's muscle, which is innervated from the same source.[2] The reduced tension was likewise due to the sympathetic lesion.[3] The one-sided increase of temperature also upholds this view of the subject. All of these symptoms have been described by Horner[4] as indicative of lesion of the cervical sympathetic, and have occurred in cases where the trouble was clearly due the pressure of enlarged cervical glands or other tumors upon the nerve trunk in this region.

Section of the sympathetic in the neck or inhibition of its function produces a very great increase in the supply of blood to the side of the head corresponding to the section or lesion.[5] The increased temperature is due to a local exaggeration of the nutritive processes depending upon the hyperæmia. That the cerebral circulation was affected is evinced by the dull headache and general stupid condition of the patient at the time of examination. Hyperæmia of the brain and its membranes is given by several authorities[6] as a cause of ocular paralysis. I am reasonably certain that the supposed inhibition of accommodation was due to the stupidity of the patient at the subjective examination, and therefore this factor may be excluded. The muscles of the eyes involved were the external, with the exception as above noted. The implication of these muscles was due to some disturbance in the function of the oculomotorious center under the Sylvian aqueduct, due to the hyperæmia induced by the sympathetic lesion in the neck.

A lesion of the nucleus is an usual cause of external ophthalmoplegia.[7] As soon as the condition of the blood vessels in this locality became restored to the normal state of affairs its function was renewed and the muscles came under control of the nerve center. The same thing happened to the sympathetic itself, although the paresis was not so evanescent, as its peripheral effects were observable at the last examination some four weeks from the first time that I saw him, and and were, in all probability, the eye symptoms referred to in the letter mentioned.

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[1] Fuchs, "Augenheilkunde," 1889, p. 336.
[2] Ib., p. 541.
[3] Noyes, "Diseases of the Eye," 1890, p. 432.
[4] Horner, Krankheiten des Auges im Kindesalter," 1879.
[5] Flint, "Textbook of Human Physiology," 1884, p. 738.
[6] Soelberg Wells, "Diseases of the Eye," 1883, p. 688. Bull. Niemeyer, et al. [7] Fuchs, p. 606.

ANALYSIS OF THE SENSORY CHANGES AND CONDITIONS OF THE OCULAR APPARATUS AS FOUND IN IMBECILITY, EPILEPSY, AND GENERAL PARALYSIS OF THE INSANE.

Read by title in the Section of Ophthalmology, at the Forty-second Annual Meeting of the American Medical Association, held at Washington, D. C., May, 1891.

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The present paper[1] is based upon a series of observations the result of five years' work at the State Hospital for the Insane at Norristown, Pa. The special character of research treated of in this communication, which has been carefully pursued by the aid of competent assistants, is here given as a series of concluding remarks upon those symptoms which have been deemed sufficiently proper for generalization and conclusion. It must be remembered, however, that the work as at present given cannot be considered complete, even from a clinical standpoint, because in reality it consists in a mere placing of all of the more certain sensory changes found in the three conditions (and before published in a separated form), into a single and combined grouping, thus hoping, as was attempted with the motor symptoms, to place them side by side for comparative study. Not that the results can be considered absolutely conclusive; not that there may not be many discrepancies, both from lack of instrumental precision and the difficulty to obtain definite data in each instance, yet still as they show in brief a concise resumé of the practical work which has been going on in the Ophthalmological Department of the Institution for a sufficient length of time to draw probably some useful conclusions, it is here given in the hope that their embodiments, even though tentative, may be of sufficient interest to excite further study in these directions.

As the real subject matter of the paper has reduced to a series of short observations bearing directly upon the different conditions found, taken

[1] This paper, which practically presents an epitome of the sensory peculiarities seen in these clinical groupings, terminates a series of studies which have been written upon by the writer from time to time during the past four years, and which have been more or less confirmed by later investigation. The first article appeared in the Philadelphia Medical Times for Feb. 5, 1887; the second was read before the American Ophthalmological Society in July of 1887; the third and fourth were read before the same body two and three years later; whilst the fifth, which contained the final report upon the motor symptoms, was published in the American Journal of the Medical Sciences for November of that year.

from the original papers, and as the results have been made into several concise groupings, it will be necessary in such a paper as this to repeat the circumstances under which the studies were made, and to give a brief account of the precautions taken to obtain as near perfect material as possible. To do this, the writer can do no better than to refer to the following abstracts taken from an earlier paper[2] upon the other branch of the subject:

"1. A special variety of symptomatic disease was taken in preference to any mental condition, because similar mental states in the many and bizarre forms of nerve lesions, making and hiding the true significance of the objective symptoms peculiar to any one disease to such an extent as to render differentation impossible, are very frequent in mental disorders.

"2. A definite variety of disease was chosen, so as to avoid obtaining a mere percentage of the ophthalmic signs of the total number of cases occurring in one asylum, an answer which through constant changes in the number of the resident population, or temporary peculiarities in the character of mentality, is liable to alter at any time, and thus make such an analysis give results and conclusions which would be totally diverse from those that might be obtained by another observer placed in a different situation.

"3. A large percentage of similar cases was taken. This was done, so that the different mental states which are seen during a definite situation in the course of any one disease might be united in a theoretical example of the physical and physiological conditions of the disease at that stage.

"5. Males were used; this is important, for, by the exclusion of the female subject, any errors that might arise from additional ocular changes dependent upon diseases which are peculiar to the sex, would thus be avoided."

At first, among the epileptics, no differential diagnoses were attempted as to the causation of the convulsions, this being done so as to embrace the entire grouping of such cases into a common lot of subjects, in order to have the greatest variations of supposable differences present at one and the same time, and thus to give greater latitude to error. Later, however, as the subject became more familiar and finer differentations became more visible, attempts were made to isolate the cases into specialized groupings.

During the examination of the imbeciles, the following precautions were observed:[3]

"1st. Care was taken to exclude all but the proper class of subjects, no one being admitted who could not be properly designated as one with decided loss of mental power of a minor degree than idiocy, from malformation or disease of the nervous system, either supervening in infancy or occurring before birth. This was done so as to avoid any error that might arise from the presence of ocular symptoms which might be dependent upon other malformation or disease, and to exclude any question as to the use of the eyes for prolonged near-work during the early years of life.

"2d. Subjects chosen whose eyes were free from extraneous disease or inflammation. Sore eyes of inflammatory and traumatic types were avoided, so as to obtain as nearly as possible representative peripheral (end) organs of comparatively healthy functional activity.

"3d. Young adults were used. This was done for two reasons: first, to have the eye at its full maturity, and thus not to allow any question of further development to enter into the argument; and, second, to have the tissues of the eye at their best before any of the processes of natural decay should have manifestly asserted themselves.

"4th. Males have been taken. These were chosen so as to avoid any errors that might arise from additional ocular changes which might be associated with diseases peculiar to the female sex.

"5th. Every subject was submitted to the same routine examination, thus preventing any seemingly gross changes to appear that might arise from differences in methods of study.

"The reasons for such rules must be obvious, as by their observance all faults in working and want of precision in method are reduced to a minimum, and the conclusions, which are the very import of the work, are thus rendered more valuable and less liable to grave and deceptive error.

"In the third series of cases great care was exercised that each subject was seemingly free from any extraneous general disease or local disorder, and that competent and authoritative medical opinion had been given as to the type of the general complaint; besides, the entire study in this direction has been limited to the male sex, so as to escape any conflicting complicating changes that might appear in connection with the many diseases peculiar to the female sex."

OBSERVATIONS—EPILEPSY.

Subjective.

1. Direct vision for form as a rule normal in both emmetropia and corrected ametropia.

2. Direct vision for color slightly subnormal as shown by faulty selection of delicate tints and shades containing low percentages of green and red.

3. Visual fields for both form and color regularly reduced, without either transposition or reversion.

[2] American Journal of the Medical Sciences, Nov., 1890.
[3] See Transactions of the American Ophthalmological Society, 1887.

Objective.

4. Optic disc superficially overcapillary, the deeper layers being decidedly gray, showing a low grade of incipient optic nerve degeneration; this being more marked in the cases where the general convulsive seizures were the most frequent.

5. Scleral ring rather more sharply cut than in the healthy eye, especially to the temporal side of the disc; this being probably due to shrinkage of lowered nerve tissue.

6. Fibre-layer of retina increased in thickness, as shown by coarse and dense massings of striation which extend in all directions from the disc; these being the most pronounced superiorly and inferiorly.

7. Retinal vessels, especially the veins, large in size, and carrying rather dark colored blood.

8. Retinal veins very tortuous, and at times pulsating.

9. Retinal arteries frequently wavy, and sometimes tortuous, particularly the temporal and the macular twigs.

10. Retinal lymph channels generally visible, being recognized as glittering and yellowish-white opacities along the larger vessels and at the vessel entrance on the disc.

11. Granular condition of choroid in the macular region, this being found in the majority of cases.

IMBECILITY.

Subjective.

12. Direct vision for form, as a rule, normal.

13. Direct vision for color probably normal.

Objective.

14. Optic disc apparently more healthy than would be expected for age of patient.

15. Physiological excavation generally seen, usually small, shallow, oval in outline (its long axis bearing no definite relation to the long axis of the disc), and ordinarily occupying a position slightly to the temporal side of the centre of the disc.

16. Scleral ring, as a rule, visible all around disc, it being slightly broader to the outer side.

17. Pigment massings beyond scleral ring ordinarily limited to narrow concentric splotchings and double loops, which are more pronounced to the nasal and temporal border of the disc; the outer massings being generally crescentic.

18. Entire absence of so-called conus. In no instance could a broad crescentic area of bared sclera be distinctly seen; the temporal massings in those eyes which were presumably used the most being roughened and broken on their outer edge, and connected with small and narrow areas of disturbed retina and choroid.

19. Fibre layer of the retina but very slightly increased in thickness; the fine and ofttimes imperceptible striation being almost entirely limited to the superior and inferior portions of the nerve border, and extending but a short distance out into the retinal plane.

20. Lymph reflexes and opacities of the vascular sheaths very few, these being mostly confined to the main venous stems at their exit on the disc.

21. Retinal vessels about normal in comparative size, and in a few instances carrying impoverished blood.

22. Choroid devoid of change, except a somewhat granular condition, more pronounced in the macular region; this sometimes being accompanied by a slight absorption of epithelium (especially amongst the most intelligent).

23. Entire absence of any gross congenital malformation.

24. Almost equal degrees of hypermetropia with slight amount of astigmatism present in every case, the average amount of H. being about 2 dioptres.

25. The less imbecile the subject, the more common were the ordinary conditions seen in the used eyes of the mentally healthy.

GENERAL PARALYSIS OF THE INSANE.

Subjective.

26. Direct vision for form reduced in every instance where obtainable; this being in direct ratio, where there was any degree of certainty, to the stage of the disease.

27. Direct vision for color subnormal in the few instances in which it could be properly studied; this showing itself more particularly for green and red.

28. Visual fields more or less reduced in the few cases where any determinate answers could be obtained.

Objective.

29. Optic discs decidedly and unequally semi-atrophic, especially in the later stages of the disease; the degeneration being especially pronounced in the deeper layers and to the temporal side of the nerve head.

30. Capillarity of nerve substance materially lessened, the greatest amount of blood supply being recognized in rather narrow crescentic areas to the nasal side of the disc.

31. The disc, in a few cases seen in the third stage of the disease, of a suffused and gelatinous appearance, its edges being plainly visible, and the surrounding retina being somewhat œdematous.

32. Physiological excavation frequent, it usually being seen to the temporal side of the disc, and extending to the lamina.

33. Scleral ring sharply cut and, as a rule, broad; this being more noticeable to the temporal side of the optic nerve head.

34. Blackish crescents of pigment, broken and

more or less absorbed beyond the scleral ring, frequent at the outer edge of the disc.

35. Pigment lines of different widths and varying degrees of absorption beyond the scleral ring, at the inner edge of the optic nerve head.

36. Fibre layers of the retina, as a rule, diminished in thickness, the greatest amount of striation being seen at the superior and inferior borders of the optic disc.

37. Retinal striation, in a few instances seen during the third stage of the disease, very pronounced, rendering the disc edges quite hazy.

38. Retinal arteries reduced in size, and at times slightly tortuous.

39. Retinal veins, as a rule, undersized, tapering in some instances as they enter the disc, and quite tortuous in a number of cases.

40. Retinal blood currents apparently normal in tint.

41. Retinal lymph reflexes very few; these being generally limited to the walls of the main vascular stems.

42. Fine pin-point opacities in the retina, between the disc and the macula, in a few cases.

43. Choroid granular and disturbed in the majority of cases.

CONCLUSIONS.

1. In idiopathic epilepsy as seen in the male adult, the low grade chronic retinitis and perivasculitis associated with partial red-gray degeneration of the optic nerve, causing decrease of physiological working power, are most probably explained in part by the presumption that every convulsive discharge leaves an additional pathological condition, by which such objective intra-ocular appearances are at last established, as the visible living results of a similar process which has *pari passu* been taking place within the intracranial substance, especially the cerebral cortex, and which may be readily seen post-mortem by careful microscopic examination.

2. In the lower grades of imbecility as seen in the male adult, which have resulted from malformation, or from disease of a minor degree than that producing so-called idiocy, that has supervened in infancy or has occurred before birth, the ophthalmoscopic findings of abnormally healthy eye-grounds, presenting pictures that are almost identical with those seen during infantile existence, indicate not only an almost absolute perfection of the visible constituents of the observed tissues, which *per se* should be capable of proper functional activity, but plainly show, by reason of mental incapacity which has supervened in such subjects before the eyes have been brought into continued and constant action as instruments of accurate and delicate use, that the ordinary objective conditions known as: dirty red-gray appearance of the optic disc; irregularity of physiological excavation; non-visibility of the superior and of the inferior portions of the scleral ring; absorbing conuses in all of their varieties; increase in density and thickness of the retinal fibres; opacities of vascular lymph sheaths; disturbed states of the choroid; and gross errors in astigmatism, with changes in indices of refraction —which are so frequent in the used eye of the mentally healthy—must be considered as pathological changes expressive of low inflammatory action, with stretching and distortion from increased intra-ocular and extra-ocular pressure.

3. In general paralysis of the insane as seen in the male, the ophthalmoscopic appearances of the choroid, optic nerve and retina, are not only indicative of pronounced local disturbance and irritation which represent the results of wear and tear given to a delicate and greatly weakened organ, but are plainly expressive of a degenerate condition of the sensory portion of the ocular apparatus, with impairment of sensory nerve action, manifested as one of the many peripheral evidences of fast approaching degeneration and dissolution of nerve elements, most probably connected with related cortex disintegration and tissue death.

SUBGLOTTIC NEOPLASMS.

Read in the Section of Laryngology and Otology, at the Forty-second Annual Meeting of the American Medical Association, Washington, D. C.

BY JONATHAN WRIGHT, M.D.
OF NEW YORK.

From clinical experience in hospital and private practice in diseases of the nose and throat, including a large number of cases, it seems evident to me that disease of the larynx and trachea of any description is not so frequently met with in New York, as the records of foreign, especially German and French, experience would lead us to believe. Neoplasms of the larynx are certainly not as frequently met with, either benign or malignant, as they are in Europe, or else they are given an undue prominence in foreign literature. While it may be true that benign laryngeal neoplasms exist in the proportion of 1 to ½ per cent. of all laryngeal cases in this country, laryngeal affections in general are much less common than abroad. This personal opinion may not be sustained by the experience of other Americans, but there is reason to believe that I am not alone in the observation.

Various localities in the air passages have been mentioned as the most common situation of benign growths, but a careful perusal of literature will, I think, show, notwithstanding considerable discrepancies of statement, that the most common place of development is on the vocal cords or at either commissure. It is conceded that their etiology depends largely upon irritation. Such being the case the places where we should naturally expect to find them would be the most

mobile parts of the larynx and those parts most exposed to the irritation of air, dust and secretions. The subglottic space being the most protected and the most immobile part we should expect less morbid action there. This conforms to clinical observation. Of 1,100 cases, collected by von Bruns, of laryngeal neoplasms, 836 were on the vocal cords. Subglottic tumors are, however, of great rarity, nine only of Fauvel's 300 cases being infra-glottic.

The following history of a case which has lately come under my observation may not be lacking in interest and may at least illustrate some important points to remember in connection with subglottic growths.

M. C., a housemaid, æt. 20. Single; born in Hungary, came to the Demilt Dispensary in May 1890. Her family history was good. Three years ago she had been troubled with frontal headaches and pains in the bones which were worse at night. At that time she began to have a hoarse cough and some muco-purulent expectoration. Her nose was stopped up and she picked it making it sore inside. These symptoms increased. For the last year she had gradually been growing short of breath on exertion, having, however, no difficulty while quiet except at times on severe coughing, of which she had several attacks each day. At times for the last year she had noticed some huskiness of the voice, but as a rule there had been no marked change in it. For the last three weeks she had been feeling weak and unfit for work. Specific history was denied.

Examination:—Pulse and temperature were normal. Respiration 24. She had slight stridor but no dyspnœa.

There was some enlargement of the cervical glands but no other evidence of specific disease.

On the left side of the nasal septum in front there was a papillary growth extending over the floor of the nose and to some extent over the anterior end of the inferior turbinated bone. It was covered with inspissated bloody mucus. There was marked thickening of the mucous membrane in the right nostril. The posterior border of the Vomer had also several wart-like growths, especially where it joins the base of the skull. There were two or three about the size of barley grains on the posterior surface of the soft palate.

Below the vocal cords there was a large congested looking mass which at first glance seemed to *block* the whole lumen of the trachea. During the greatest possible abduction of the vocal cords, however, it was seen that the base of the growth was attached to the left side of the cricoid cartilage and the tracheal rings, and projected to the other side beyond, but considerably below the edge of the right vocal cord during quiescence. The surface looked uneven, covered with mucus, and as though it were very vascular (this proved otherwise however). The mucous membrane on the right side of the subglottic space was also seen to be thickened and roughened.

Her imminent danger was explained to the patient, who was somewhat incredulous, but who nevertheless promptly consented to enter the wards of Roosevelt Hospital.

For diagnostic purposes iodide of potash was given in increasing doses. After a few days signs of iodism appeared and the patient had suddenly almost fatal dyspnœa. A tracheotomy was done just below the cricoid cartilage, artificial respiration resorted to and the patient recovered.

Four days later, Dr. Frank Hartley made a long incision dividing the thyroid cartilage and several rings of the trachea, exposing the interior and the growth, which proved to extend downward for about 2½ inches below the vocal cords and to involve ¾ of the circumference of the trachea at the point of greatest growth. It had all the macroscopic appearance of an ordinary papilloma. As soon as the trachea was opened the patient ceased breathing and it required energetic artificial respiration and hypodermic stimulation to start the natural respiration again. It was found impossible to resume the ether, although several attempts were made causing cessation of the breathing. Of course etherization was commenced through the tracheotomy tubi and later given through a tube inserted at the lower angle of the tracheal wound. The operation was therefore finished under partial anæsthesia. The growth was found to be flattened by the pressure of the tracheotomy tube. It was cut away from its attachment, which included the under surface of the left vocal cord, by knife and scissors, the base and every vestige of suspicious looking mucous membrane, including the small growths on the right side, were thoroughly and deeply cauterized with the Paquelin cautery.

A tracheotomy tube was left at the lower angle of the wound, and the upper part of the trachea and the larynx was packed with iodoform gauze. The latter was removed in a few days and some weeks later the tube was withdrawn and the wound closed without any untoward symptoms, but she remained totally aphonic.

She was discharged from the hospital and again became an out-patient under my care. The growths were removed from her nose by cautery, snare, and forceps.

At the anterior laryngeal commissure was a pale, flabby growth about the size of a split pea. It was apparently a granulation nodule at the site of the thyrotomy incision. Failing with the forceps, this was destroyed by the galvano-cautery.

The patient was kept under occasional observation for six or seven months. Her voice did not return, but at the end of that time small sessile growths began to appear just beneath the

right vocal cord. A small portion of these was removed with the laryngeal forceps. Since then the patient has disappeared from view. There was no deterioration of the general health, although the patient naturally became somewhat hypochondriacal. The left vocal cord in the process of cicatrization was almost completely destroyed, at least as far as its usefulness in phonation was concerned.

Gerhardt has lately stated that the differential diagnostic point between syphilis of the trachea and tracheal cancer is that cough and signs of irritation do not occur in cancer as initial symptoms, dyspnœa being the first sign of trouble. In this case, which, however, was a benign tumor, it will be noted that a harsh cough preceded the dyspnœa by two years.

In fact, it is remarkable how little dyspnœa the patient suffered when her trachea was all but occluded by the growth. It was only on exertion, or from some temporary increase of mucus or transient congestion from coughing, that she experienced much discomfort. Such cases show how much larger than necessary for quiet respiration the trachea is, the extra size being Nature's supplementary device for emergencies — a device which makes violent and extraordinary exertion possible, and which renders simple inflammatory inflammations all but harmless.

It illustrates a point too often forgotten in obstruction of the air passages, viz., that the dyspnœa is most frequently due not so much to the mechanical stenosis as to the spasmodic or paralytic condition of the vocal cords, which irritation of the mucous membrane or compression or irritation of the nerve trunks may cause.

Intrinsic *laryngeal* tumors and extrinsic tumors pressing on the air passages, close alongside of which run the nerve filiments, may cause severe attacks of spasmodic dyspnœa, whatever the size or extent of the disease may be, while intratracheal disease rarely gives any dyspnœtic symptoms until the mechanical stenosis is very great.

Koch,[1] in his late article, said:

"If a tracheal tumor produces dyspnœa, that tumor is necessarily of large size, and of such a nature as to suffocate the patient at any moment. The laryngoscope gives us a defective idea of the size of the tumor on account of the inevitable shortening of the vertical diameter, while the intensity of the dyspnœa furnishes us with a more exact guide."

How suddenly, and with what little premonitory warning, an almost entire occlusion of the remaining air chink may take place, and the patient pass from comparative comfort into a condition rapidly terminating in suffocation is shown in this case, and in others of a similar nature. In dyspnœa caused by spasmodic contraction of the vocal cords — the dyspnœa of many cases of thoracic aneurism, of hysteria, of inflammation, of *laryngeal* neoplasms—there is usually a certain leeway allowed for the performance of tracheotomy, because, as soon as insensibility from the carbonic acid poisoning occurs, the spasmodic action of the glottis is usually suspended, though this is not inevitably the case. The sufferer may then gradually return to consciousness, or at least get enough air to keep his heart going for a time. Purely mechanical obstruction, however, is a different matter.

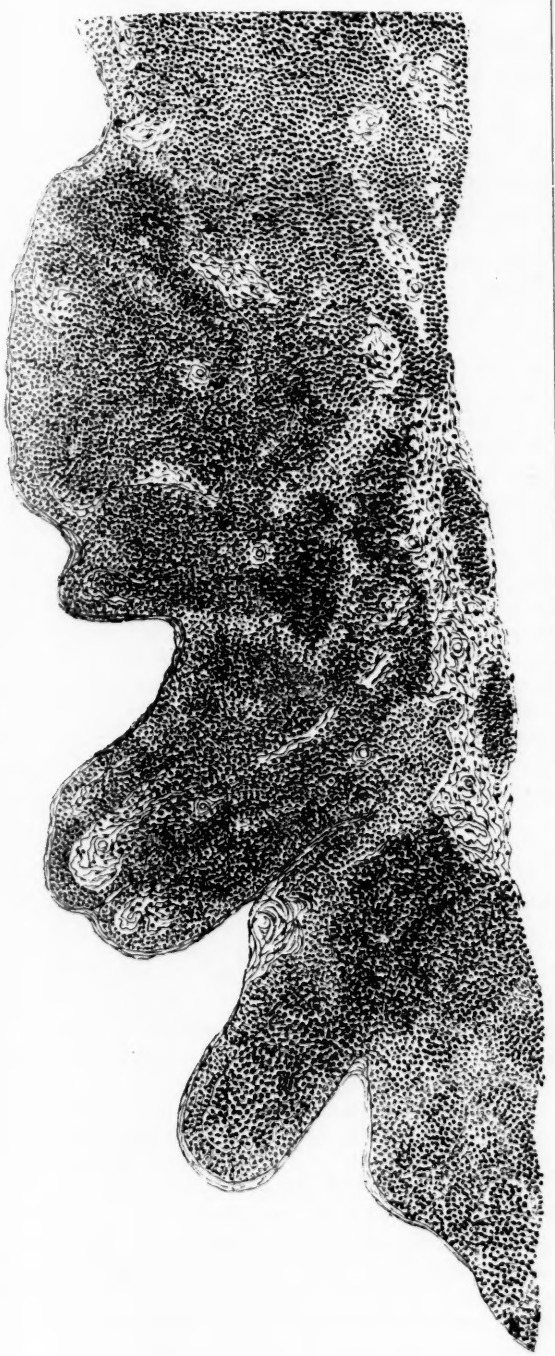
Therefore, when the iodides are given for obstructive disease of the air-passages which may not be syphilitic, and even in cases where the diagnosis of specific disease is certain, especially when the obstruction is subglottic, it is well to remember that *slight* congestion is a very common sequel of even moderate doses, and that even slight congestion may prove disastrous if immediate surgical aid is not at hand.

More than half of all the cases of benign laryngeal neoplasms reported have been recorded as papillomata. It is very suggestive of insufficient pathological discrimination that there should be such a preponderance of this growth. As to the character of the growth in the case reported, you will see from a drawing of a microscopic section made by Dr. Hodenpyl that it consists essentially of a mass of lymphoid tissue covered by pavement epithelium, which dips down into its substance as digitations, and rises above the surface as papillæ. These papillæ, as well as the substance of the growth, have for a framework the masses of lymphoid cells. There was more than the usual amount of fibrous tissue found in the ordinary so-called adenoid growths, though in the section from which this drawing is made it is not apparent.

If we regard this as a true tumor, the proper designation, according to the rules laid down by Virchow, would be "Lymphoma papillare." If, however, we are to accept the definition of a tumor, "that it is a non-inflammatory growth or new formation of tissue fulfilling no physiological purpose," this, as well as all so-called adenoid vegetations, should be designated as a papillary lymphoid hypertrophy. This is a question for hystologists who are accustomed to arrange such matters to suit themselves, irrespective of clinical convenience and experience.

Lymphoma of the larynx, according to all authorities who mention it, is of the greatest rarity, as are many of the other benign forms of tumors, although they are common enough on other mucous membranes. This is probably due to the fact that in the larynx, as is the case in the bladder, morbid growths, either benign or malignant, are usually attended with the increase and hypertrophy, as well as the new formation of papillæ, on their surfaces.

[1] Koch: Ann. des mal de l'oreille, etc. Oct., 1890.



Notwithstanding the protest of Virchow, and of many of the best histologists, these growths, when benign, are all classed under the head of "papillomata," whatever may be the predominant histological element in their structure.

This leads to great clinical confusion, and to a mistaken conception of the nature and pathogenesis of these growths.

The only records of so-called lymphoma of the larynx which I have met with are two cases, one referred to by Gottstein in his book, and another reported in the *Lancet* for October 15, 1887, by Beale; both of these accompanied general lymphomatosis. Wolfenden and Martin, however, in their brochure, "Studies in Pathological Anatomy," give a drawing of lymphoid hypertrophy, which they call lymphoma, and which occurred in the larynx independent of any general affection.

Notwithstanding this apparent rarity, I do not believe it can be so uncommon, but that some of these papillary tumors, if carefully examined, would be found to consist largely of lymphoid tissue. Sarcoma is also extremely rare in the trachea.

Such mistakes in nomenclature have been largely avoided in malignant tumors, owing to the importance of the prognostic aspects in such cases; but malignant tumors of the mucous membranes are quite as likely to be supplied with fungous or papillary surfaces as are benign growths, if not more so.

As observed above, it is rare that small tracheal growths come under observation, except where they coexist in the larynx. The question of treatment is in these cases frequently a puzzling one, and always an important consideration.

Those rare forms of tracheal gummata occasionally seen are of course to be treated by large doses of iodide of potash, and it may always be advisable, with proper precautions, to give the iodides where the diagnosis is not perfectly plain.

Leaving malignant tumors out of the question, and confining ourselves to the class of cases of which the one reported is a type, there are three methods of extirpation where interference is advisable:

1. Intubation with long O'Dwyer tubes.
2. Intra-laryngeal operations; by
   - *a*. Forceps or snare.
   - *b*. Cautery, either galvanic or chemical.
3. Extra-laryngeal operation.

The procedure by means of intubation is yet in its infancy, and is, of course, applicable only to those subglottic cases where the disease lies close beneath the vocal cords. Rapid absorption of benign and even syphilitic growths have been reported by Simpson and others. Intubation can probably be advantageously employed in connection with the intra-laryngeal use of the forceps

or of the cautery. With this I have had no personal experience, but it is certainly deserving of a trial, the dangers and difficulties which attend other methods being absent or reduced to a minimum by intubation, and in event of failure, the toleration acquired from the intermittent use of a tube would be of the greatest advantage in intra-laryngeal operations.

The greatest difference of opinion prevails as to the proper cases for intra- and extra-laryngeal operations, some going so far as to urge an external operation even in supra-glottic tumors in adults, while others go to the other extreme by urging that even in children infra-glottic growths may be removed *per vicas naturales*, cases having been reported where papillomata were removed from the fifth tracheal ring. The sanction of Fraenkel, of Berlin, to intra-laryngeal operations in cancer will not now be received with favor by the majority of laryngologists.

In tracheal growths, in the vast majority of cases, the tumor will usually be of such a size when first seen that nothing but an external operation would be advisable. In small, benign growths, in a tolerant adult, attempts by the intra laryngeal method will often be met by the most brilliant immediate results even in the trachea, but recurrence will be frequent, because it is impossible to be sure that the growth is completely eradicated.

Where attempts are to be made in larger tracheal growths, through the natural passages, thorough preparation both of patient and attendants should be also made for an immediate external operation, because, in event of failure to remove the growth, enough congestion and inflammatory action may be set up to lead to complete tracheal occlusion.

The choice of instruments will depend largely on the personal bias and skill of the operator and the character of the growth. Personally, for small sessile growths, I prefer the white hot guarded galvano-cautery electrode. For growths which project more onto the lumen of the trachea, McKenzie's lateral or longitudinal forceps are preferable, with, however, more of a gradual curve at the angle than is seen in the usual patterns.

Cauterization by chromic acid, although recommended by some of the most experienced operators, seems to me of inferior value, except to cauterize the base of a tumor removed by the forceps. When the epithelium is intact, these growths certainly are not as quickly destroyed by acids as by the actual cautery. (Of course, I speak principally from experience in other situations than the trachea.)

A very practical point in these intra-laryngeal operations is the way in which the patient reacts to the application of cocaine. In many patients it leaves nothing in the way of local anæsthesia to be desired. In others it seems impossible to produce satisfactory results with any safe dosage, this applying to the 20 per cent. strength as well as to weaker solutions. Cases are not rare where severe constitutional symptoms of the drug may appear before any practical local action is observed. It is at once the most useful and the most uncertain of drugs.

In considering the question of an external operation, the operator should be well satisfied of the impractibility of the operation by the natural passages. In many cases a preliminary attempt may be made by intra-laryngeal methods, and in event of failure, the external operation immediately done.

The dangers of the external operation are not only that to life, but also to the integrity of the voice. It is unnecessary to dilate upon the dangers of fatal pneumonia or bronchitis following the operation. This case illustrates a danger which is not satisfactorily explained, namely, the occasional prompt cessation of respiration or of the heart's action the moment the trachea is opened. I have had two cases of tracheotomy where the heart was paralyzed at the moment of opening the trachea, although the pulse had been a moment before fairly good. There seems good grounds for the belief that there exist areas below the glottis, the excitation of which may profoundly affect the functions of the heart and lungs. It is possible that these areas may also exist outside of the trachea in the anterior cervical region. At any rate, there are enough cases on record to demonstrate that this operation has dangers beyond those usually ascribed to it.

In trachael tumors there is the added danger of hæmorrhage from an incision of the tumor itself in opening the trachea. When a vascular tumor is attached to the anterior wall, this may cause very great embarrassment to the operator, and a fatal termination may ensue.

The danger to the integrity of the voice is of course not to be weighed in the balance with the patient's life, and should be entirely a secondary consideration. It is probable that the early writers have exaggerated this danger even in laryngeal growths. The simple separation one from another of the wings of the thyroid cartilage, bearing with them the attachments of the vocal cords, is probably a minor factor in the production of future aphonia or dysphonia. The danger comes from damage to the vocal cords themselves, and this may occur in endo-laryngeal operations as well. In the eradication of tracheal growths by an external operation, the division of the thyroid cartilage will usually be found necessary to gain room, and should not be omitted for fear of damage to the vocal apparatus.

A preliminary low tracheotomy is not a necessity, nor always of advantage, in spite of what

Koch says at the end of his article, although in some cases it may facilitate matters. It would be encroaching on the domain of general surgery to go further into the question of the technique of an external operation for these tracheal growths, suffice it to say that the indication is usually perfectly plain, and should be promptly met, as every moment of delay is fraught with danger to the patient.

In sections made from the fragments removed from the recurrence on the right side of the subglottic space, the microscopic appearance had more the resemblance of a small, round-celled sarcoma.

The difficulty in distinguishing lymphoid growths of the mucous membrane from small-celled sarcoma by microscopic examination is often very great. In the last year I have been puzzled in several cases, and submitted the sections to several experienced microscopists. In every instance I met with a diversity of opinion as to the character of the growth.

I have a number of such sections in my possession, and the similarity between the simple lymphoid growths and those which afterward proved to be malignant is striking.

In one case, I followed by repeated microscopic examinations of fragments removed at different times the course of a small, round-celled sarcoma of the nose. The first specimen was universally regarded as of a benign lymphoid character. It gradually changed in appearance to that of undoubted sarcoma, of the small, round-celled variety. The clinical history and situation made the diagnosis of sarcoma probable, even at first.

EXCISION OF THE MEMBRANA TYMPANI, THE MALLEUS AND INCUS, AS A MEANS OF TREATMENT IN OTITIS MEDIA CATARRHALIS CHRONICA, AND IN OTITIS MEDIA PURULENTA CHRONICA.

Read in the Section of Laryngology and Otology, at the Forty-second Annual Meeting of the American Medical Association, held at Washington, D. C., May, 1891.

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That which is offered in this paper is somewhat of the nature of a report on the progress of aural surgery in a very important direction. Although not a new operation, the operation of excision of the membrana tympani and the two larger ossicula, as performed in this country, in thorough organization and elaboration, is new, and entirely due to the labors of Dr. Samuel Sexton, of New York. Excepting Dr. Sexton, Dr. Colles in New York, and myself in Philadelphia, are the only ones in this country who have performed the operation and published accounts of its performance.

The indications for the operation are:

1. The deafness, tinnitus and vertigo of otitis media catarrhalis chronica, especially when adhesions exist between the membrana tympani and the promontory, or there is evidence of synechiæ between the ossicles.

2. The suppuration, deafness, tinnitus, vertigo, headache and recurring earache of otitis media purulenta chronica.

The *rationale* of the operation, in chronic catarrh of the middle ear, is the improvement of the hearing by obtaining a permanent perforation in the membrana tympani, and, by a removal of the malleus and incus, to unload the stapes, and thus relieve the tinnitus and vertigo so often found in this disease, usually miscalled Ménière's disease, and incorrectly referred to nervous disorder in the labyrinth. In otitis media purulenta chronica, by exsection of necrotic tissue, drainage is improved, and more direct medication being applicable, the suppuration in the tympanum is checked. Cessation of the suppuration, reduction of the swelling of the mucous membrane about the fenestræ, and the removal of such mechanical obstructions, relieve deafness and tinnitus, and the stapes being thus unloaded, vertigo is checked. The operation, as performed by myself, has always been upon the etherized subject, the ear being illuminated by a 6 volt electric head-lamp, of two or three candle power, run by a 6-volt portable battery. The lamp is an Edison incandescent lamp, the illuminator or lantern holding it being made by the River and Rail Electric Light Company of New York, while the battery I now use is a 6-volt storage battery, weighing 11 lbs. 6 ozs., made for me by the Electro-Dynamic Company of Philadelphia. By this means a pure white light is obtained.

Anæsthesia is necessary, as the patient must be absolutely still. The use of ether, which I prefer, necessitates the employment of an electric lamp, to avoid the risk of setting the patient on fire, as an artificial light must be brought very near to insure sufficient illumination of the ear. Reflected sunlight would answer the same purpose, if it could always be had when and where desired. The electric head-lamp gives direct illumination, which allows a freedom in the movements of the surgeon's head, greater than reflected light would permit.

The operation in otitis media catarrhalis chronica is necessarily different from the operation in otitis media purulenta chronica, as in the former the membrana tympani and ossicula are intact, while in the latter, parts of the auditory conductors have been destroyed by disease The operation in chronic catarrh of the middle ear, as performed in this country, consists in making,

first, an initial incision behind the short process of the malleus, continuing it by means of a probe pointed knife up to the membrana flaccida and then backwards, throughout the periphery of the posterior superior quadrant of the membrana, so as to expose the incus-stapes joint. I do not cut into the bone tissue to do this. If the incus-stapes joint, which lies very high in the attic in some subjects, cannot be exposed by exsection of soft tissues, I proceed without touching it at this stage of the operation. When the incus-stapes joint is exposed, I pass between the malleus and incus a small two edged knife, triangular in shape, 2 mm. long, set at right angles on a slender shaft, and rotate the instrument between thumb and forefinger and sever the incus-stapes joint. The surgeon's eye can easily follow all of this manœuvre. Now the incision in the membrana tympani may be carried a little lower, both on the periphery and manubrium, if the perforation is not already large enough to permit the withdrawal of the incus.

2. While the incus is held in position by its attachment to the malleus in front and by its short process behind, the long process may be seized with forceps, and the entire bonelet easily withdrawn. If this is not done at this stage of the operation, subsequent manipulations will almost surely displace the incus from view and it cannot be easily found. All grappling after the incus, when it cannot be seen, is inadvisable, as the incus will rarely be caught after being lost from view, and irritation of the entire tympanic cavity will surely follow rough probing in the attic after the misplaced incus.

3. With a curved two edged tenotome, now sever the tendon of the tensor tympani muscle, by cutting upward behind the short process of the malleus.

4. With a probe-pointed knife sweep about the entire periphery, seize the malleus at or above the short process, never below it, and withdraw the malleus and the membrana tympani attached to it.

5. The hæmorrhage is so slight in otitis media catarrhalis chronica, that gentle mopping with baked cotton is sufficient. I refrain from mopping with any fluid in these cases. The meatus should now be lightly stopped with baked cotton or iodoform cotton, and let alone for twenty-four hours.

My operations in all cases, both in chronic catarrh of the middle ear, and in chronic purulent otitis media, have been performed only after all other rational means have been tried and failed to give relief.

In otitis media catarrhalis chronica the operation has been undertaken to relieve deafness, tinnitus and vertigo, as all of these symptoms are often present in the same subject. Sometimes deafness occurs alone; but tinnitus is never found in chronic catarrh of the middle ear without some deafness, and vertigo is never present in this disease without tinnitus and deafness. When deafness is present alone, even when the operation does not remove it, I have never known it to make the hearing worse, nor to be followed by tinnitus or vertigo. Regeneration of the membrane often follows, preceded by painless suppuration, or more commonly by an excessive discharge of clear, glairy mucus. Some numbness of the tongue, from section of the chorda tympani, may be felt in two or three days and continue for a short time after the operation, but it soon wears off.

In many cases of chronic catarrh of the middle ear, nothing else but this operation will benefit. So-called mobilization of the stapes, stretching the chain of bonelets, and section of the folds of the membrana, amount to nothing. The first two are probably never really done, as the stapes cannot be reached under inspection, in most cases.

Traction on the malleus simply, will not affect the stapes, and the lightest traction on the incus will detach it from the stapes. Traction on the stapes, if the latter can be seen and seized, will quickly break the crura. Section of the folds of the membrane, like simple incision in the sclerotic membrane, may improve the hearing for a few minutes or even hours, until the incision heals. No permanently good results can be shown to have followed these expedients, like those resulting from excision of the membrana tympani and the two larger ossicles.

Relief from a sensation of pressure in the ear is one of the most constant results of the operation. In some instances, signal relief from aggravated tinnitus and aural vertigo follows immediately upon the operation, and is permanent.[1] The least frequent result in otitis media catarrhalis chronica, is permanent improvement in hearing. Section of the chorda tympani nerve is of no consequence, as the numbness of the tongue produced by it disappears in a few days.

Organization of the Operation, in Chronic Catarrh of the Middle Ear.—The patient must be in fair health, and should live moderately for some days preceding the operation. The operation should not be performed during menstruation. After the operation the ear should be lightly stopped with baked cotton or 5 per cent. iodoform cotton; but not with bichloride cotton, as it may irritate the skin of the canal when kept in constant contact. Patients should remain in bed twenty-four hours after the operation, and in the house not more than five days. Then it is best to go out, at first with ear stopped with cotton, in all seasons of the year. It is advisable to avoid sudden motions of the head and anything tending to sudden congestion of the head.

[1] See case reported by C. H. Burnett, American Jour. Med. Sciences, February, 1890.

If suppuration or a mucous discharge sets in, cotton must not be worn in the ear, as it gets moist and macerates, and irritates the meatus. Regeneration of the membrana tympani interferes with none of the gains of the operation, excepting improved hearing; this is diminished, as a rule, by regeneration of the membrana, but not always, according to Lucae and others.

Conclusions, in Chronic Catarrhal Otitis Media.—1. The operation of excision is attended with no bad results, even if it do no good.

2. The most constant result of the operation is a relief from a sensation of pressure and fulness in the ear.

3. The next most frequent result of the operation is the prompt, entire and permanent relief of tinnitus and aural vertigo (Ménière's symptoms).

4. The least frequent result is improvement in hearing. Sometimes, however, this is marked. If the hearing is improved by the operation, but diminishes upon regeneration of the membrana tympani, the latter can be broken down as often as it re-forms, until its reparative power is overcome. In some cases it appears that the improved hearing persists, notwithstanding regeneration of the membrana tympani.

5. In those cases of chronic catarrh of the middle ear, in which everything else has been tried without benefit, it would seem that the patient should have the chances of improvement offered by this harmless operation.

The Operation in Otitis Media Purulenta Chronica.—In some cases of chronic suppuration of the middle ear the operation has a wider field of application, and the results are better. Suppuration, after defying all other means, is checked by it. Thus the sequelæ of chronic purulent otitis media are warded off. It is especially useful in attic suppuration, with the sole perforation in the membrana flaccida. In such cases there is always necrosis of one or more ossicle, and sometimes of the surrounding osseous wall. By the operation necrotic ossicula can be removed, drainage of the attic secured, and direct medication rendered practicable. If the surrounding osseous wall of the attic is necrotic, it can now be reached conveniently after excision of the membrana flaccida and the two larger ossicula.

In suppuration of the atrium with the sole perforation in the membrana tensa (below the folds), it will be found, if the perforation is small and situated below or in front of the manubrium, that the disease is limited to the anterior portion of the atrium, that granulations and granulation tissue are flourishing on the inner surface of the membrana and in the front part of the tympanic cavity. In such cases, when the disease has been running on defiantly for years, it will yield quickly after the diseased tympanic wall and the granulations are treated—best, according to my experience, with chromic acid, which could not have been applied before the excision of the membrana.

The deafness is often astonishingly improved by the operation, rising from *nil* in some cases to 15 feet for isolated words of ordinary tones.[2] Tinnitus too is quelled, and vertigo and headache banished. The general health is markedly improved, after the removal of necrotic tissue from the ear. In many of these cases the patients have been suffering from a mild form of chronic septicæmia. In children the repeated gatherings in the ear are entirely overcome by the operation.

Since, in otitis media purulenta chronica, we have to deal with necrotic remnants of the conductors of sound, the operation varies greatly from that in otitis media catarrhalis chronica. It varies, in fact, in every case of otitis media purulenta chronica, according to the ravages of the chronic disease. Hæmorrhage is always more abundant and confusing in chronic purulent otitis media than in operations of chronic catarrh of the middle ear.

In otitis media purulenta chronica the first endeavor should be to expose the incus-stapes joint, if not already exposed, by a pathological perforation in the membrana tympani. If the incus is not diseased in any way, and still in connection with the stapes, it may remain, but if diseased in any point, either by granulations or caries, it must be removed. A view of this bone is more easily obtained in attic disease with a large perforation in the membrana flaccida, or when this perforation is enlarged by the knife. If the operation is applied in a case of attic suppuration, with the sole perforation in the membrana flaccida, the perforation should be enlarged so that the attic can be inspected, and examined with a probe for diseased bone. Caries of the malleus will invariably be found, and generally, too, the incus is carious or destroyed by necrosis. All carious tissues should of course be removed. In attic cases, the malleus may first be removed, as the incus cannot escape from view if present in the attic, with the large perforation in the membrana flaccida. If present, the incus should next be removed, and the surrounding walls examined for caries. If caries be found on the inner tympanic wall, very little, if any, scraping should be done there, because, now that thorough medication can be applied directly to the attic, carious bone tissue will tend to crumble off and the bare surface to cover in with muco-periosteal membrane, if the caries is not extensive enough to have caused the formation of a distinct sequestrum.

If the latter has formed, it should be promptly removed. Often it will discharge itself after the attic has been opened and drainage improved.

[2] See case reported by me, Philadelphia Med. News, August 16, 1890.

In purely attic cases the lower tympanum will often be found entirely free from disease. In very chronic attic disease, after destruction of the incus and the head and neck of the malleus, the manubrium and membrana tensa remaining intact, the atrium is converted into a pocket, which will be found filled with pus and cholesteatomatous masses, beneath which granulations will be found on the promontory and upon the inner surface of the membrana tympani, as in a case recently operated on by me, but not yet published.

If the case is one of chronic suppuration of the middle ear with the perforation in the membrana tensa, *i. e.*, anywhere below the folds of the membrana, the membrana flaccida being intact, excision should be performed in the same way as in a case of chronic catarrh of the middle ear, unless the perforation in the membrana is so large as to permit thorough inspection of the atrium and its examination with a probe. If the perforation is small and the discharge very chronic, granulations will be found on the inner surface of the membrana tympani and upon the inner wall of the tympanum.

The latter region is often of a uniform, velvety surface of granulation tissue, passing into true discrete granulations near the tympanic mouth of the Eustachian tube. The lower end of the manubrium may be found carious, if included in the periphery of the perforation.

Such conditions in the tympanic cavity, revealed only by excision of the membrana, when the perforation in it is small, demonstrate the uselessness of the routine treatment usually pursued in such cases. These are the cases which, beginning with a muco-purulent discharge from the ear, in a child, proceed defiantly and uninterruptedly, no matter what the treatment, for years, until with impaired and decreasing hearing the membrana tympani is gradually sloughed away, the ossicles more or less destroyed by necrosis, and the drum cavity, both in the attic and atrium, choked with granulations and cholesteatomatous débris. Then the aditus and the atrium mastoideum, and the mastoid cells are invaded. Before the latter event, however, cerebral abscess may be developed, or sinus thrombosis and pyæmia may bring about a fatal termination. The least that happens in such cases is an impairment of hearing, and a chronic offensive discharge from the ear or ears.

Given, therefore, a case of chronic otitis media purulenta, with a small perforation of the membrana tympani and impaired hearing, which has continued for a year or more, and undergone all forms of ordinarily employed routine treatment, we all know the logical sequence of its natural history to be what I have just described.

We also know that the imperative demand upon the aurist is to arrest such a process as quickly as possible, not so much to save hearing as to save health, and probably the life of the patient. Old methods will not do it in numerous cases, notably among those with poor hygienic surroundings. Defiant cases are common even among the wealthy, who are surrounded with every means of health. In excision of the membrana tympani and necrotic ossicles is offered an efficient and prompt means of stopping the purulency and preventing the ravages which will surely follow a continuance of the suppuration. The hearing and health of the patient will surely be improved, and his life rendered safer, because of the removal of the risk of sinus thrombosis, pyæmia and cerebral abscess.

There would be very little, if any, mastoid disease, if purulent otitis media in children were promptly cured. In many instances there is no way to check it but to perform excision of the membrana, and thus get at the disease while still limited to the anterior portion of the drum cavity, and before it has even made a large perforation in the drum-head. At once drainage is improved, and direct medication of the diseased mucous membrane can be carried out. Then solutions, powders and caustics can be applied rationally and with good effect.

The hearing will improve, the suppuration will be checked before reaching the attic or the mastoid, and a new membrana tympani will form, or the mucous membrane of the drum cavity assume a dry, white and shining appearance.

Conclusions in Cases of Otitis Media Purulenta Chronica.—1. The operation has not failed to stop suppuration in all the cases of chronic purulent otitis media in which the writer has applied it.

2. In attic cases with normal atrium, the sole perforation being in the membrana flaccida, this operation is the only means of cure.

3. By this operation, in cases of chronic purulent otitis media, in which the sole perforation is in the membrana tensa and is comparatively small, and while the purulency is limited to the anterior part of the drum cavity, the suppuration is promptly checked, before it has had an opportunity to attack the posterior portion of the drum cavity. Thus mastoid inflammation and necrosis, sinus thrombosis, pyæmia and cerebral abscess are prevented.

4. If any hearing exists before the operation, it invariably improves after the excision.

5. Vertigo, headache, tinnitus, and the ordinary attacks of ear-ache from "gatherings," so common in chronic otorrhœa in children, are entirely and permanently relieved by the excision of the necrotic remnants of the membrana tympani and the two larger ossicles.

A BRIEF ACCOUNT OF THE ETIOLOGY AND TREATMENT OF TINNITUS AURIUM.

Read in the Section of Laryngology and Otology, at the Forty-second Annual Meeting of the American Medical Association, held at Washington, D. C., May 6, 1891.

BY LAURENCE TURNBULL, M.D., PH.G.,
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It is not the object of this brief paper to dwell at length on all forms of tinnitus aurium, but to omit those which are so well understood and treated by every well educated medical man; as, for instance, those caused by cerumen, pressing on the membrana tympani; inflammation or swelling; exostosis or abscess of the auditory canal; that large class caused by catarrhal changes in the tympanum or middle ear, and the Eustachian tubes; changes of structure with deposit in, or on, the membrana tympani with or without perforation and polypus in or near the same region. It will be our desire to dwell on the more obscure forms which we find in disease of the internal ear, labyrinth, auditory nerve, and above all, the reflex causes of deafness, with the most distressing forms of tinnitus.

It is now well known by you that there exists a connection between the auditory nuclei in the medulla, the pons, and the cortical auditory centers of either side of the brain, and that the "sense of hearing is in greater part situated in the temporal lobe, and more especially in the superior temporal gyrus of this lobe."

As Dr. Ferrier has stated in a letter, tinnitus may occur in both ears, as the result of unilateral irritation, the effect of the intimate connection of the auditory nerves and centres. The cases of sensory cortical discharges reported by Hughes Bennett may be advanced, Dr. Ferrier thinks, to establish this view. Ferrier writes that Baginsky states that the auditory nerve is in relation with the auditory centre of the cortex. through the lower fillet of the opposite side, and thence by means of the posterior tubercle of the corpora quadrigemina, and internal geniculate body to the medullary fibres of the cortex.

We may thus classify, according to Professor Jones, the principal sources of reflex irritation or inhibition of the auditory nerve: *a*, Through communications at the nuclei of origin; more especially might this occur through the sensory fifth and tenth nerves. *b*, Through the communications with the facial in the internal auditory meatus, the reflection from this connection being transmitted along the petrosal nerves from the otic and Meckel's ganglions, and the parts supplied by them. *c*, Through communications between the nerves supplying the tympanic structures, and Meckel's ganglion and the otic and geniculate ganglions. According to Foster, the activity of the tensor tympani muscle is regulated by reflex action. *d*, Irritations may be reflected to the cerebellum or the auditory centre and referred to the ear or different parts of the head. Most important are the researches of Gaskell as to the presence and course of vaso-constrictor and vaso dilator fibres (which control the blood supply by constriction or dilatation of the small vessels) arising, the former from the upper part, and the latter throughout the whole length of the spinal cord, and which pass to the cervical ganglions of the sympathetic, and thence (in this instance) to the special arteries, furnishing the supply of blood to the ear, more especially the internal auditory, from the basilar. Also, of importance is the fact that certain nerves, such as the trigeminus and cervical sympathetic, appear to be supplied with special "pressor" fibres (McKendrick), which have the power of constricting the vessels; this may occur either from a direct or reflected irritation of these fibres, which irritation, as in the case of the cervical sympathetic nerve, must have an important effect on the circulation in the ear. Of the various other nerve communications and distributions in the ear, which bear on reflex irritation, we would remind you of the connection between the glossopharyngeal, fifth, and sympathetic nerves, as, for example, the supply of the tensor-tympani and stapedius from the otic ganglion and the facial nerves respectively; the communications in the tympanic mucous membrane, between Jacobson's nerve, the sympathetic, and the geniculate ganglion of the facial nerve, and the other communications between the carotid plexus of the sympathetic, Jacobson's nerve, and the otic and Meckel's ganglions, thus bringing all these nerve communications into direct relation with the superior cervical ganglion. The supply of the anterior wall of the external auditory meatus and the tympanic membrane from the auriculo-temporal is an important point bearing on reflex irritation from affections of the external meatus, which cause tinnitus, when the middle ear is healthy. This sensory supply, be it remembered, is connected with the facial and pneumogastric nerves.

The abnormal physiological conditions which are likely to cause tinnitus.—With regard to the physiology of hearing, it does not appear that there are any proofs that separate centres exist for the perception of different kinds of sound. A sensation arising from any irritation in the auditory centre may be referred to the periphery, that is, to the origin of the nerve filaments in the labyrinth (McKendrick). The receptive auditory centre is possibly in part situated in the cerebellum. An irritation occurring either in the labyrinth, the auditory nerve, or receptive centre, will, Professor McKendrick considers (in a communication which he has kindly written to Dr. Jones on this subject), "produce a stimulus in the hearing centre which will cause a sensation or a

series of sensations which will always be referred to the labyrinth. Such irritations may be caused by anything that interferes with the normal equilibration of the fluid in the labyrinth, by any direct or reflected irritation of the nerves of the external meatus, the middle ear, or labyrinth." They may follow or attend the presence of abnormal constituents in the blood which circulates in the respective centres, as well as alterations in the blood supply due to increase or diminution of blood pressure. This latter condition occurring either at the periphery, in the cerebellum, or in the course of the auditory nerve would be in itself sufficient to start an irritation of the hearing centre.

It has to be remembered, as Professor McKendrick rightly insists, how exquisitely sensitive the auditory nerve apparatus is, a fact with which all are acquainted who have studied the physiology of the ear in its perceptive powers, and its faculty of differentiating, analyzing, and synthetically arranging sound waves.

Vertigo.—Certain disturbances in the equilibration of the labyrinthic fluid, or reflex irritations of any part of the nervous apparatus of the labyrinth, or irritation of the auditory nerve nuclei, may cause the symptom of vertigo to accompany that of tinnitus. Stimulation of the cerebellum or cortical auditory centres m ay have the same effect; such stimulations may be reflected; deafness is not necessarily an accompaniment of the vertigo under these conditions, nor is it absolutely necessary that there must be local aural changes discernible in those suffering from the symptoms portrayed by Méniére.

Tinnitus Aurium Produced by Aneurismal Dilatation of the Left Posterior Auricular Artery.—We have had several cases of this form of tinnitus. In these there was a peculiar whistling and puffing sound (aneurismal thrill), caused by aneurism of the temporal branch of the internal carotid artery. In one case reported, the artery was tied with success. According to Hyrtl, there is in man a capillary which passes to the promontory. Might not affections of the tympanum frequently induce alterations in this vessel? Patients are sometimes relieved of pulsatile sounds by compression of the external carotid. The application of the continuous electric current is beneficial, particularly in passive congestion from vascular atony; it excites contractility, and causes the blood stasis to disappear.

The various forms of pulsating tinnitus are the result of aneurism or some alteration in the blood-vessels, anæmia, or excessive action of the heart; we must try compression of the temporal or carotid, diminishing the frequency of the heart's action by aconite or digitalis, or if the patient is anæmic, administer the salts of manganese, or lactate or citrate of iron, or the combination of iron and common salt. (Flint, New York.) Very good results have followed their use in anæmic deafness with tinnitus.

We must make careful diagnosis, by exclusion, to discover whether we have excitement of the brain causing subjective noises, or on the other hand exhaustion from over effort or some drain upon the nervous system. In the first intance, we resort to bromide of potassium or sodium, or if there is any suspicion of syphilitic complication, add bichloride of mercury and the iodide of potassium, with the active principle of jaborandi to produce greater activity of the salivary and sweat-glands.

If it be from exhaustion, we resort to a solution of phosphoric acid employed in the form of "lemonade," or to the phosphites or hypo-phosphites, in conjunction with strychnia or its salts, and the use of the galvanic current to assist in completing the cure.

A case relieved by operation. Pulsating noises, with vertigo. Miss Maria C., the sister of a distinguished western physician, was sent to us with a letter, in which he stated that his sister had a persistent discharge from the right ear, in which she was almost absolutely deaf. She was a teacher of music, and had to be much exposed, out of doors, during all kinds of weather. She was very intelligent and cultivated, and was a skilled musician, but was most distressed about the discharge, and the odor, which was obvious in spite of great care. She was also much annoyed by the peculiar pulsating noises in that ear, and the dizziness was also so severe at times that she was afraid of falling, and had to grasp at any object for support. She had been treated by various means, but without success. Having been very successful in treating a nephew, she placed herself under our care, being quite ready to carry out all directions faithfully. After cleansing the ear, we found the membrana tympani perforated, the opening being in the upper inferior quadrant, but entirely closed with polypoid granulations which extended from the perforation all the way forward, involving the upper wall of the bony meatus. After removing the posterior mass by several operations, by the wire snare, pressure was made by a probe, and it entered a cloaca-like opening in connection with diseased bone, and this at once caused her a severe attack of vertigo, which lasted, even when the instrument was removed, several seconds.

By the administration of large doses of quinine and hydrobromic acid, and now and then an anodyne on account of pain in the part, she was able to allow the gradual removal of all the diseased bone by scraping with a small sharp, spoonlike instrument. We then applied the actual cautery, and, lastly, a ball of fused nitrate of silver on an aluminum wire. After many months of treatment it filled up with healthy granulations, and closed. The discharge gradu-

ally diminished, and the perforations healed by the use of boracic acid and solution of boro-glyceride. Several relapses occurred. She has been residing in the country, giving music lessons and doing Sunday-school work, and being out in all weather, but has had no severe relapse. Another method is proposed, first, by Lucca, and still another is the removal of the membrana tympani, malleus and incus; a method which is still *sub judice.*

Spastic Contraction of the Intrinsic Muscles of the Eustachian Tube. Diagnosis.—Spastic contraction of the tensor tympani causing the noise in separating the mucus in the Eustachian tubes.

Treatment.—Inhalations of chloroform, and belladonna by the middle ear, to allay spasms, and valerianate of quinine and oleo-resin of cubebs to act upon the nervous system and mucous membrane and the Eustachian tube. With the primary galvanic current in front of the ear and in the Eustachian tube by our intratympanic catheter, and this, together with the local application of a sol. argenti nitratis to the tonsils, diminished the sounds. The continued use of the battery, with the local application to the throat and mouth of the Eustachian tubes of the fluid extract of hydrastis canadensis by means of our Eustachian forceps generally afford relief. These cases may be arranged under two classes—one in which the spasm is involuntary, and not controlled by the will of the patient, and the other voluntary.

The Influence of Aural Diseases upon Nervous and Mental Disorders.—The neurologists and psychologists do not estimate the importance of this subject, or give it due attention in their examinations. Dr. Catlett reports the case of a man about fifty years of age, an enterprising, moral, sober-minded person, a successful merchant, who had enjoyed uninterrupted good health previous to the accession of the persistent and "peace-destroying" tinnitus, which caused him to abandon his business and give up family and friends; but in all his wanderings over the world he was still pursued by his tormentors, and finally shot himself the night after he had consulted with the doctor, who was unable to report whether the hallucinations had any association with aural disease, as the doctor was unable to examine the condition of the ears. In cases of insanity, which if not caused by, is increased and maintained by aural disease, this should be treated.

Our rule should be that if there is any hereditary tendency to mental disease, and the hallucinations are persistent, resembling any of the forms of which we have given examples, care should be taken that the ears be examined, and if it be possible, the symptom of tinnitus removed.

Always endeavor to encourage the patient by suggesting that an improvement may occur by varying the treatment, and also by being able to state that the brain or auditory nerve is seldom involved, and that as a rule it depends in the great majority of instances on some slight change in the muscles, ligaments, or blood vessels of the middle ear, which may cause increased pressure in the labyrinth. Hundreds of such cases are relieved by simply removing the offending cause.

In the peculiar class, complaining of "Chirping of Sparrows" and "Musical Sounds." (Reflex Tinnitus.)—We place them on a mixture of sherry wine and tincture of nux vomica, five drops in a tablespoonful after meals, feeling sure the sounds depended upon some reflex irritation of the spine reflected to the semi-circular canals. The success of the treatment confirmed the diagnosis. The use of this drug entirely relieved the annoying symptoms after one month's treatment.

There are also certain occupations that increase the intensity of the noises, as in those engaged as telegraph operators, locomotive engineers, boiler-makers, and machine or mill-workers.

Mental Influences.—There are certain mental influences which increase or diminish these sounds. As occasioned by a happy frame of mind, the pleasant dry weather, such will often diminish the intensity. Worry or ill temper, meeting strangers, or wet, damp, cold weather, or intense heat, or a close room, will often increase these sounds. Pleasant occupation or active work, or riding in a carriage or railroad, will diminish them. Tinnitus is usually not so intense during the day time, but becomes much louder when everything is quiet, or at night. This is especially the case if the individual suffers from dyspepsia or indigestion. The subjective noises are produced or increased by sickness of the stomach, or during pregnancy and the puerperal state, and before menstruation.

There are various forms of reflected "reflex-tinnitus." Painful noises are produced in the ear from diseased condition of the kidneys, more especially diabetes, also in Bright's disease, which latter causes effusion of blood and serum in the middle ear, with a peculiar form of tinnitus, which can be removed by proper constitutional treatment.

Tinnitus caused by disease of the labyrinth is usually of a low pitch, and there is a "rushing" and a "humming," caused by increased pressure in the labyrinth forcing the stapes inward. The following are the usual means or agents employed in the treatment of labyrinthine tinnitus.

Treatment.— Pilocarpin, nitroglycerin, hydrobromic acid, ergot, mercury, iodide of ammonium and potassium and strychnine; these with the cholagogue preparations and some other measures have been found by us to be the most effective remedies if employed in the early stages. (See the author's "Manual of Diseases of the

Ear, p. 497, 2nd ed.) We report one case as showing the effects of a combined treatment:

Case 1.—John H.—Nov. 24, 1890.—In his 49th year; had distressing tinnitus aurium for one year; has been a chewer of tobacco and a smoker for the last ten years; becomes now and then intoxicated; enlarged liver; heart sounds indistinct; slight opacity with sinking of membrana tympani; countenance dull and face congested; circuation sluggish; taking bromide of potassium and chloral.

℞. Ung. potass. iodide comp. to apply over liver.

℞. Tinct. digitalis with spiritus ammonia aromat. āā gtt. xx thrice daily in water for heart as a stimulant, and

℞. Cerateum pilocarpin muriat. around ears.

℞. Cerateum hydrarg. ox. flav. et morphia, used in the meatus on cotton.

Nov. 25.—No improvement; confined to house; messenger stated that the family were afraid of his becoming insane; did not sleep; filled up the ear with a 10 per cent. warm solution cocaine hydrochl.; opened Eustachian tube under ether vapor; made application of comp. sol. of iodine in glycerine to posterior nasal space; applied strong sol. of menthol in front of ear; also directed six ounces of blood to be drawn by leeches or cups from front of ear and mastoid process; ordered Sprudel salts; to repeat the anodyne solution of potassii bromidium with chloral at 9 P.M. and 12 M.; his head feels hollow; no dizziness, but "hissing sound" most of the time, which may be from diseased blood vessels; pulse normal, tongue white, bowels irregular; not to use tea or coffee, and continue to use laxative.

Nov. 26.—Leeches have bled well; slept but little; employed the anodyne mixture freely; states that "if he cannot get better he will go mad;" his general appearance is better; used hypodermic of ¼ gr. sulphate morphia and $\frac{1}{50}$ gr. nitroglycerin back of ear and occipital region; when under the influence of anodyne perforated the membrana tympani at lower quadrant and scarified the auditory meatus.

Nov. 27.—Did not sleep during the day, but at night he was able to sleep under the influence of a half grain of codeia; pulse 88; respiration normal; no pain; blood still discharged from the ear; opened the Eustachian tubes under ether, and administered hypodermic of $\frac{1}{50}$ gr. nitroglycerin.

Nov. 28.—Patient about the same; did not sleep with the use of the codeia; introduced $\frac{1}{50}$ gr. nitroglycerin and to take through the day every three hours $\frac{1}{100}$ gr. with mixture of bromide of potassium and chloral and a dessert spoonful of "bromo-caffeine." He states that he is "so anxious to get well" he is willing to take anything; pulse more steady and regular; have now made up my mind that the trouble is "alcoholism," with hallucinations which induce insanity if not relieved.

Nov. 29.—Patient came in advance of his attendant and stated that he was a great deal better, had but very little pain and that the noises were very much less, had taken a tablespoonful of the mixture of the bromide and chloral with two teaspoonfuls of the "bromo-caffeine" and had slept naturally all night; had taken his Carlsbad salts, which had operated also; had his hepatic region well rubbed with codine ointment, taking the increased dose, thirty drops in water, of Squibb's hydrobromic acid; a hypodermic of $\frac{1}{50}$ gr. nitroglycerin and ⅛ gr. muriate of pilocarpin aristol was used in meatus.

Nov. 30.—Had a fair day and was able to sleep all night; had a slight increase of tinnitus after the last dose of hydrobromic acid.

Dec. 1.—Hypodermic of nitroglycerin $\frac{1}{50}$ gr., cleansing the ear with soda solution; still improving, and able to sleep, but took his $\frac{1}{100}$ gr. nitroglycerin every three hours.

Dec. 4.—Returned after absence of two days, still doing well; noises not so great; slept well; not to return but on alternate days, and requires no attendant; introduced hypodermic of $\frac{1}{150}$ gr. of nitroglycerin and gave him 100 pills, one to be taken three times a day; continue the other therapeutic agents.

Dec. 6.—Patient continues to improve, and was able to sleep all night; noises much less; bowels moved naturally, and able to take care of himself.

Dec. 8.—Patient feeling very much better; slept well, and had a good day; continued treatment; perforation open; secretion discharge ceased; scabs and dried blood removed later from meatus.

Dec. 10.—Still improving; cleansed ear; opened Eustachian tube under ether; examined liver, found the enlargement gone and much relieved.

Dec. 13.—Improvement continues; finds the inflation by Valsalva's method increases noises; Eustachian tube open, and throat and nose almost clear.

Dec. 16.—States to-day that he is "first rate;" noises not distressing him; cleaned the opening in the membrana tympana and made application to the throat.

Dec. 20.—Feels very well; scarcely any noise to-day; ear feels well; perforation open; throat doing well.

Dec. 24.—Is doing well, able to sleep, eat, and feels well.

Dec. 27.—Sleeps without anodynes; noises still slight, but not like the harsh sounds which he stated "seemed to raise even the bed blankets." Swelling over liver gone so that he can sleep on that side.

Dec. 31.—Feels quite well to-day, and has been since last visit; opened Eustachian tube with catheter and ether and directed to continue treatment until Jan. 24th, when he was discharged, feeling well enough to do without the doctor.

NATIONAL ASSOCIATION OF MILITARY SURGEONS OF THE NATIONAL GUARD OF THE UNITED STATES.

CONCERNING THE ORGANIZATION OF THE MEDICAL DEPARTMENT OF THE NATIONAL GUARD.

Read at the First Meeting of National Guard Surgeons, at Chicago, Sept. 18, 1891.

BY J. D. BRIANT, M.D.,

SURGEON-GENERAL OF THE NEW YORK STATE NATIONAL GUARD.

While the title of this paper is sufficiently expressive, as it seems to me, to make its importance obvious to all concerned, still, it is not the intention of the writer now to do more than to speak of the medical officers of the Guard and their immediate aids. The scope of a complete organization for the duties of active service, as in the case of the regular army, is too extended to be considered at large at this time, and in fact it may be best considered by a careful study of the methods employed in the regular army itself. I shall deem it sufficient at present to dwell upon the necessity of what may be called self-evident requirements of the medical service, requirements, the advisability of which are so obvious as to hardly need more than the mention to carry conviction to all minds. Those of you who are at the head of a well-organized medical department can appreciate its importance to the service, as well as the assiduity necessary for its establishment. Those who are anticipating such a desideratum can but welcome the opportunity here offered to profit alike by the facts to be presented and the friendly criticism they will necessarily inspire. I shall speak of the Guard as an entirety, giving to it the comprehensive significance of the expression National itself. This course is proper, since the prime object of the organization is similar in all States—the protection of individual and public rights from organized and otherwise ungovernable violence. And, too, in each State, the Guard is sustained by the patriotism and local pride of the citizens of communities, who as willingly perform military duty in the Guard as they pay taxes for its support. It follows from these indubitable facts that the people of these communities, and of States even, expect, as they have the right to, a wise preparation for an efficient protection from violence of private and public interests, whenever the occasion demands it. And it is equally logical to say that their approbation and support of the Guard will be directly proportionate to the actual and prospective benefits which they contemplate or receive by reason of its existence. It, therefore, follows that the medical, like every other department of the Guard, should be so organized as to give to the greatest number the greatest good at all times that is consistent with military efficiency. The necessity for such provisions in the medical department of many States is pregnant with the sentiment that teaches that:

> The woes of the defenders
> Of a country's cause
> Should be soothed by a wise adjustment
> Of a country's laws.

This sentiment refers not alone to the sense of grateful patriotism that contemplates a liberal and substantial recognition on the part of a country of those who have served in her defense, but also it implies a practical adjustment of matters by wise measures in times of peace, for the prevention and alleviation of physical disaster in times of strife. In the amplification of this idea I cannot help but believe that the medical department of the National Guard should be so constituted that it may extend "prompt aid" to the citizen-soldier and citizen-taxpayer at all times in case of physical emergencies. The consummation of this plan can but meet the hearty approval of those it is intended to aid, and will thus cause, on their part at least, a proportionate increase in the moral and financial support of the Guard. It has been my great honor, as well as pleasure, to have been connected officially with the Guard of New York since June, 1873. About ten years of this time were devoted to regimental service, a service that enabled me to study the needs of the medical department at large, and especially to note the deficiencies of the one under my immediate charge. During the remainder and later portion of the service—about nine years—I have, as surgeon-general of the State, been able, with the concurrence of the commander-in-chief, and the advice and individual support of the officers of the medical staff, to advance the status of efficiency of the medical department to a considerably higher plane than it formerly occupied. At the time of my entrance to the Guard, no properly authorized medical scrutiny of the professional qualifications of an applicant for the position of medical officer in the Guard had been established, except that he shall have graduated from a medical college; and this requirement was assumed to have been complied with quite as often as it was demonstrated to have been by the exhibition of fitting credentials. And, too, at this time it was necessary that the commandant of the organization be convinced that the applicant was a "good fellow," and would "fill the bill," at least in all respects essential to good-fellowship. Good policy and good principle often parted company at this phase of requirement. At all events, the essential qualifications that constitute a proper medical officer, in the professional sense, could be made subservient to the social, financial and political considerations of the laity sense. As the result of this policy, while many good and true men were recruited, yet many—indeed, too

many, in fact — were accepted who valued the commission only for the selfish gain they hoped for, rather than the honorable and useful record it might have in store for them. It is plain to be seen that a policy of this kind furnished not only indifferent medical service of the legally authorized type, but also opened the way for even a great abuse—the acceptance of those who were possessed of no legal qualifications whatever to practice medicine or surgery. Please do not misunderstand me; for while this abuse was of rare occurrence indeed, still the system was such that it need not have been the exception, in so far as official medical scrutiny exercised any control. It is not strange if, at this time, commanding officers often looked on their medical subordinates in the light of physical ornaments and conveniences, or as animated luxuries, to whom they might refer matters of a medical tenor for decision, when they felt condescendingly inclined, or when good policy dictated that their own opinion should have the genuine or implied approval of a medical officer. I will not dwell longer on the unfortunate realities nor the grave possibilities of this former course of action than to add that it was not the result of indifference or dishonesty, but simply a phase in the developmental history of the Guard. Please remember that this period is twenty years to the rear of the one of to-day, and although a continuous improvement was made in this respect by the cleansing influence of a ferment of earnest and wise purposes, and the survival of the fittest, still it was not till the issuance of an order, of which the following extracts are the greater portions, that the matter was placed on an official and enduring basis :

GENERAL HEADQUARTERS, STATE OF NEW YORK.
ADJUTANT GENERAL'S OFFICE.
ALBANY, August 28, 1888.

General Orders No. 17.

1. Upon the recommendation of the surgeon-general, persons appointed to medical offices will hereafter be examined, before being commissioned, by special boards selected by the surgeon-general, and hereby appointed :

Returns of appointments of medical officers will be referred by the commanding officers of brigades to the boards appointed for their respective commands, and all concerned will be governed by the rules prescribed in General Orders No. 14, series 1887, from this office, so far as the same are applicable.

2. Appointees to medical offices shall be further examined in the standard branches taught in legally incorporated medical schools; the diagnosis and treatment of injuries and diseases to which troops may be exposed; the means employed for the urgent relief, and for the transportation of sick and wounded, including stretcher drill (see provisional manual of instruction, U. S. A.); camp and personal hygiene; and as to their knowledge of official papers relating to their department.

By order of the commander-in-chief.

JOSIAH PORTER,
Major-general and Adjutant-general.

Now please note the results of the enforcement of this order : The worth of a medical commission in the National Guard is greatly enhanced, and medical men of high attainments now seek positions in the service, serve faithfully, and wait patiently for promotion; the commanding officers respect their value and ability, and, therefore, seek their advice and heed it. The efficient, faithful and conscientious medical officers are now leavening the entire loaf of the medical service, and have become examples for emulation, instead of subjects of pomp or objects of pity, as they were often in the past.

The educational influences of the State Camp, which was established in 1882, and the introduction of rifle practice throughout the Guard, made the presence of the surgeon, and the importance of his attainments, thoroughly appreciated. Prior to 1887, the hospital stewards were of the most nondescript character. I recall well the fact that the first hospital steward coming under my charge in the regiment with which I was connected in 1873 was a stable-keeper. He was both faithful and honest, and his assiduity and endurance were phenomenal. His attention to duty was exceeded only by his entire ignorance of the preparation of medicines and their physical properties. For some time prior to 1887, I had advised that only such as were legally qualified to dispense medicines by the laws of the State relating to pharmacists should be permitted to act as hospital stewards of military organizations. However, my advice in this respect was not heeded until the occurrence of an object lesson which was so emphatic and pointed as to permit of no delay in the issuance, August, 1888, of an order, of which the following is an extract:

"The hospital steward of the regiment in camp, or, if there be none, a suitable person selected by the surgeon-general, will act as post hospital steward under the orders of the post-surgeon and the instructions of the surgeon-general. Such person or hospital steward must have passed an examination before the State Board of Pharmacy, and be licensed as a druggist according to the laws of the State ; and regimental and battalion hospital stewards not so examined and licensed will not be recognized by the State, or permitted to act as hospital stewards. Regimental and battalion commanders ordered to camp duty whose hospital stewards do not meet those requirements will at once report the fact to these headquarters."

It may not be amiss now, in view of the importance of this order, to narrate the event that inspired its immediate promulgation, especially since this course may serve as a warning, and again aid in the establishment of a reform, the necessity for which at one time came near causing a most distressing accident, if not a fearful calamity in connection with the State Camp of New York. A lady, the wife of an officer of the general staff, visited the State Camp one evening

to witness the dress parade, and while there was attacked with a severe neuralgic headache, for the relief of which she wished me to prescribe. This I did, going myself to the camp druggist for the remedy, instead of sending an orderly with the prescription, as is the custom. The prescription called for a half grain of codeia and ten grains of bromide of potassium to be taken at once.

While waiting for the compounding of the remedy by the acting hospital steward of the organization then in camp, I leisurely leant against the center pole of the drug-store tent and made a casual survey of the contiguous tents and company streets. A moment after, and almost unconsciously, my attention was directed to the manipulations of this officer compounding the order, and I noticed that he had measured a considerable quantity of a whitish powder, which had not the appearance of bromide of potassium, and was too large an amount, I thought, for the required codeia. I asked, "What is that?" "Codeia," he said. "How much?" I inquired. He replied "One half a grain, as you ordered." "It cannot be possible that one half a grain of codeia will make so much bulk," I exclaimed. "Please balance your scales." He did as directed, weighed the powder again and found that there were six and a quarter grains of codeia instead of one half a grain as ordered. You will better appreciate my feelings and excuse this detail of statement, I think, when I tell you that the lady was the wife of the Surgeon-General himself, and that she would have been some distance from camp, no doubt, before the full effects of the drug could have appeared. This lesson is made still more impressive by the fact that the acting hospital steward at that time was an educated physician of some years' experience. And, too, it teaches in no uncertain manner that one unfamiliar with the physical properties of drugs should not be permitted to assume the duties of hospital steward.

Thus the uneducated hospital stewards were disposed of, so far as the service of the State camp was concerned. About one year later the final fatal blow was dealt to the system by the issuance of the following:

"It appearing that there are hospital stewards who are not qualified, according to the laws of the State, to perform the duties required of them, commanding officers are directed to discharge such from the service at once. Hospital stewards should have passed an examination before the State or county boards of pharmacy, and have secured licenses as pharmacists."

There remains but one other feature of the medical service to which I shall call your attention now—the education of a certain number of the rank and file in the simple methods of rendering "prompt aid to the injured." At the present time, in the Guard of the State of New York, the plan of procedure is indicated with sufficient clearness by the following order, which paved the way to its enforcement:

GENERAL HEADQUARTERS, STATE OF NEW YORK.
ADJUTANT-GENERAL'S OFFICE.
ALBANY, December 22, 1887.

General Orders, No. 36.

1. Commanding officers of regiments and battalions, and of batteries and separate companies having a medical officer, will organize ambulance corps in their respective commands as follows:

For a regiment or battalion, the corps shall consist of the medical officers of the command, the hospital steward, and three enlisted men from each company of seventy-five men, and two enlisted men from each company of less than that number.

For a battery or separate company, the corps shall consist of the medical officer and four enlisted men.

The enlisted men shall be detailed by the commanding officers, upon the recommendation of their senior medical officers, and there may be included in the detail for a regiment or battalion two corporals, and for a battery or separate company one corporal, but no other non-commissioned officers.

When the exigencies of the occasion require, commanding officers will detail such enlisted men as have already been found proficient, and may also detail musicians for duty with the corps.

Men detailed for ambulance service shall be relieved from such duty on the application of the medical officer having charge of the corps to which they are attached.

2. The corps shall be under the immediate orders, control and instruction of the senior medical officer of the command to which it belongs, but no assignment or detail for duty with the corps shall relieve an officer or enlisted man from his regular duties, except when on duty with the corps in active service.

3. To prepare the members of the corps for their duties, the medical officer in charge will provide a course of instruction. This course shall commence in the first week in January of each year, and continue during the drill seasons of the year, and shall be open also to such other members of the command of which the corps is a part, as may be approved by its senior medical officer.

The dates, hours and places when and where the instruction will be given, shall be published in orders to the whole command by its commanding officer.

4. The course of instruction given by the medical officers of the command shall include, for the present:

Rudimentary instruction in anatomy and physiology.

Rudimentary instruction in the diagnosis of the common accidents and diseased conditions to which National Guardsmen are exposed, and the common means for the prevention of the same.

Instruction as to the common means employed for the urgent relief of the sick and the injured, including stretcher drill and matters pertaining to transportation of the sick and injured.

Instruction in individual and camp hygiene.

5. At the close of the course of instruction, the detailed men of the corps shall be examined as to their proficiency, by a board to be appointed for that purpose, as hereinafter provided.

The senior medical officer of each regiment, battalion, battery and separate company, shall keep a record of the name, proficiency and general standing of each member of the ambulance corps under his charge, from the time of the first attendance of the member to the termination of his course of instruction, and also the result of his examination.

6. Commanding officers of brigades will, with the approval of the Surgeon-General, appoint for their respective commands boards of examination, which shall consist of not less than three medical officers, whose

duty it shall be to examine and report to the brigade commander as to the proficiency of the detailed men who have attended the prescribed course of instruction. These men will be ordered before the examining board on the application of the commanding officers of the regiment, battalion, battery or separate company to which they belong.

7. Enlisted men of ambulance corps, when actually on duty as such, are authorized to wear, in addition to insignia of military grade, around the left arm above the elbow, an arm badge (brassard) "of white cloth, 16 inches long and 3 wide, with a cross of red cloth 2 inches high and 2 inches wide in the centre."

8. An enlisted man who has passed the prescribed examination satisfactorily, and has the approval of the commanding officer of the brigade to which he belongs, will be permitted to wear at all times a badge, of a pattern to be prescribed in further orders, distinctive of the ambulance corps of this State, as an indication of a special fitness to aid the sick and injured under urgent circumstances.

9. Details for instruction in the duties of an ambulance corps will be made annually, at such time as will permit the course of instruction of each succeeding class to begin promptly in the first week in January.

10. There shall be allowed and issued by the Chief of Ordnance, as Acting Quartermaster-General, State Arsenal, corner Thirty-fifth St. and Seventh Ave., New York City, upon requisition made direct to him by the respective commanding officers, stretchers of a pattern approved by the Surgeon-General, at the rate of two for each regiment and battalion, and one for each battery or separate company having a medical officer.

By order of the Commander in Chief.

JOSIAH PORTER,
Major-General and Adjutant-General.

You will observe that the expression "ambulance corps" is employed in this order, and you will quickest comprehend the contemplated scope of the proposition embodied in the order, I think, if its aims be distinctly isolated at once.

1. The annual education of a definite number of men, many of whom would be declared competent by a board of examiners to render prompt aid to the injured comrade in times of strife, and to the comrade or citizen in the event of physical misfortune in times of peace. These to constitute the ambulance corps of the season.

2. The keeping of a yearly record of the proficiency of each of these men, with the view of the selection of those who are most serviceable when a serious occasion demands. This corps to be the ambulance corps of the occasion.

Already numerous instances have been brought to the attention of the State military authorities of the aid and comfort rendered by these men to the afflicted citizen in case of physical misfortune. And on all occasions in the service of the guard they have given wise advice and commendable injunctions to their comrades, and have promptly and efficiently spanned the important interval between the immediate demands for their own efforts and the arrival of a medical officer. It is proper to add in this connection that there is often much opposition on the part of commandants to making the details required by the order, so much in fact that the organization of a permanent corps instead is being given a serious consideration. It might appear unjust on my part were I not impelled to add that this opposition is not a general one by any means, but one that is limited more especially to the smallest of the company and regimental organizations. However, in all of those commands in which unity of purpose, *esprit de corps* and personal pride of organization are the predominating features, the opportunity to acquire the knowledge is hailed with delight and eagerly accepted. I will now venture the statement that the interest and appreciation exhibited by military commands in measures best intended to increase and extend their importance and usefulness, and the earnestness of their coöperation in them, is in direct proportion to their prosperity, and to the confidence and esteem in which they are held by both the military and civil authorities. The badge mentioned in section 8 of the order is made of coin silver, and bears the red cross and the legend, "Prompt Aid to the Injured" on the face. Thus far it has been permitted to become the property of the winner, and is worn by him on all occasions, civil and military, as evidence of his ability to give prompt aid to the injured of all classes. It is now my opinion that the badge should be the property of the organization, in order that it may not be retained by those who are out of active military service, and for this reason may depreciate its value by its unwarranted use, and by failing to keep pace with the requirements of the service. At all events, some evidence should be retained by the worthy members at all times which will justify the belief that they are competent to perform their duties in this service, and will offer to them the opportunity and right of receiving instruction when sought for, and bear evidence of continued assiduity and competence on their part.

[NEW ORDER.]

GENERAL HEADQUARTERS, STATE OF NEW YORK,
ADJUTANT-GENERAL'S OFFICE,
ALBANY, September 3, 1891.
General Orders No. 23.

1. General Orders No. 36, from these headquarters, dated Dec. 22, 1887, providing for the organization of ambulance corps, and for the instruction of men detailed for ambulance service, is hereby revoked, and the following substituted therefor:

2. Commanding officers of regiments and battalions, and of troops, batteries and separate companies having a medical officer, will organize ambulance corps in their respective commands, but the corps in existence at this date in accordance with general orders No. 36, of these headquarters, series 1887, will be continued under the provisions hereinafter prescribed.

For a regiment or battalion, the corps shall consist of the medical officers of the command, the hospital steward, and as company bearers three enlisted men from each company of seventy-five men, and two enlisted men from each company of less than that number.

For a troop, battery or separate company, the corps shall consist of the medical officer and as company bearers four enlisted men.

The details for company bearers will be made by the

commanding officer of the organization of which the corps is a part, upon the recommendation of his senior medical officer. The men selected must possess the ability and intelligence necessary for the requirements of this service. There may be included in the detail for a regiment or battalion not more than two corporals, and for a troop, battery or separate company not more than one corporal; but if a member of the corps should be promoted to a non-commissioned office he shall be allowed, if he so desire, to complete the course of instruction, and after he has passed the examination prescribed below, the senior medical officer may select him as one of the non-commissioned officers authorized.

Men detailed to an ambulance corps shall be relieved from such duty on the application of the medical officer having charge of the corps to which they are attached.

Whenever actual relief for sick or injured is required, the commanding officer will detail such enlisted men as have attended the course of instruction, and may also detail musicians for such service.

3. When on ambulance duty, or under instruction, the corps shall be under the immediate orders and control of the senior medical officer of the command to which it belongs, but no assignment or detail for duty with the corps shall relieve an officer or enlisted man from his regular duties, except when actually on duty with the corps in active service.

4. To prepare the members of the corps for their duties, the medical officer in charge will provide a course of instruction. This course shall commence in the first month of the drill season of each year and be held at least once in two weeks during such season. It shall be open also to such other members of the command of which the corps is a part as may be approved by its senior medical officer.

The dates, hours and places when and where the instruction will be given shall be published in orders to the whole command by its commanding officer.

5. The course of instruction, given by the medical officers of the command, shall include, for the present:

Rudimentary instruction in anatomy and physiology.

Rudimentary instruction in the diagnosis of the nature of accidents and disease manifestations to which national guardsmen are subject, and the common means for the prevention and treatment of the same.

Instruction as to the common means employed for the urgent relief of the sick and the injured, including stretcher-drill and matters pertaining to transportation of the sick and injured.

Instruction in individual and camp hygiene.

6. At the close of the course of instruction, the detailed men of the corps shall be examined as to their proficiency by a board to be appointed for that purpose as hereinafter provided.

The senior medical officer of each regiment, battalion, troop, battery and separate company shall keep a record of the name, proficiency and general standing of each member of the ambulance corps under his charge, from the time of the first attendance of the member to the termination of his course of instruction, also the result of his examinations, and the number of the badge if one is awarded to him.

7. Commanding officers of the brigades will, with the approval of the Surgeon-General, appoint for their respective commands boards of examination which shall consist of not less than three medical officers, whose duty it shall be to examine and report to the brigade commander as to the proficiency of the detailed men who have attended the prescribed course of instruction. The presiding officer of each board shall notify the commanding officers of the organizations of his brigade of the dates on which the board will be in session, and when they will examine the detailed men of the respective corps. These men shall then be ordered before the examining board by the commanding officer of the regiment, battalion, troop, battery or separate company to which they belong, and those who pass the prescribed examination shall form the ambulance corps of their respective organizations, and remain members of the same subject to the approval of the medical officer in charge, and subject also to an annual examination by the board mentioned.

8. Enlisted men of ambulance corps, when actually on duty as such, are authorized to wear around the left arm above the elbow (non-commissioned officers as far above the chevron as practicable) an arm badge ("brassard") of white cloth, sixteen inches long and three wide, with a cross of red cloth two inches high and two inches wide in centre.

9. An enlisted man who has been detailed to an ambulance corps, and who has passed the prescribed examination satisfactorily, and has the approval of the commanding officer of the brigade to which he belongs, will be permitted to wear, with the consent of the commanding officer mentioned below, while a member of the corps, on dress and undress uniforms, and when in citizen's dress, the badge of the ambulance corps of this State, of the pattern heretofore issued, as an indication of special fitness to aid the sick and injured under urgent circumstances; this badge shall be turned into the regimental, battalion, troop, battery or company commander of the soldier, when the latter ceases to be a member of the organization, and such commander shall be responsible to the State for the same, and shall have the power for good reasons to refuse permission to wear or decline to issue the same to any one.

10. Details to fill vacancies in the ambulance corps will be made upon the recommendation of the medical officers, if possible from those who have attended the course of instruction, and who appear upon competitive examination to be best qualified for the duties.

11. When a member of the ambulance corps ceases to be a member of the regiment, battalion, troop, battery or separate company, he shall receive, from the Surgeon-General of the State, upon the recommendation of the medical officer and the commanding officer, as evidence of his special qualifications and ability to perform the duties of the corps, a certificate to that effect, which certificate will entitle the owner to receive instruction in the duties of the corps at regular intervals, and to be examined in the same, and to have the result of the examination indorsed on the certificate.

12. There shall be allowed and issued by the Chief of Ordnance, as Acting Quartermaster-General, in cases where such issue has not already been made, upon requisition made direct to him by commanding officers, stretchers of a pattern approved by the Surgeon-General, at the rate of two for each regiment and battalion, and one for each troop, battery or separate company having a medical officer.

13. The Brigade Commanders and the Surgeon-General, and under him the brigade surgeons are charged with the prompt execution of this order, in their own sphere, and the latter and the Surgeon-General, in matters of instruction and advice, will communicate directly with the medical officers in charge of corps.

By order of the Commander-in-Chief.

JOSIAH PORTER,
Adjutant-General.

Official.

————*Ass't Adj't General.*

I will not detain you longer, as, it seems to me, sufficient has been said already to provide a substantial foundation for wise action in the future. Permit me, in conclusion, to offer the following recommendations for your consideration:

1. The requirement that all medical applicants should be caused, before entering the Guard in

the capacity of medical officers of commands, to pass an examination that shall be a rigid test of their ability to meet the demands of the position which they seek.

2. The requirement that all hospital stewards shall be fully qualified by law or by practice to dispense medicines intelligently and correctly.

3. The requirement that a suitable number of intelligent members of a command be instructed, examined, and be passed when proficient in the details essential to the rendering of "prompt aid to the injured," and of bestowing wise care on the sick.

4. The requirement that such worthy members be permitted to have in their possession a suitable badge, or other testimonial, at all times, as evidence of their ability.

In conclusion, permit me to express the belief that the formation of a scientific body from the medical officers of the Guard should be made secondary to the development of an efficient system of practical medical service in the Guard. And even then it seems to me that it can but be based upon an uncertain and fickle tenure, so long as no wise and judicious control can be exercised as to the *personnel* of its membership. It ought not to be overlooked that the commission bestowed by the State is the certificate of membership, not the requirements that few or many of the members may see fit to demand. Not to recognize a commission issued to its representative by a State or Territory is subversive of discipline, and can but lead, in my judgment, to dense demoralization, unmannerly bickering, and the breeding of life-long animosities, all of which are destructive of harmony and efficiency, and contrary to the laws and traditions of the service to which we belong.

BOOK REVIEWS.

A TREATISE ON THE DISEASES OF INFANCY AND CHILDHOOD. By J. LEWIS SMITH, M.D., Clinical Professor of Diseases of Children, Bellevue Hospital Medical College; Physician to Charity Hospital; Physician to the New York Foundling Asylum; Physician to the New York Infant Asylum; Consulting Physician to the Department of Children's Diseases, Bureau of Relief for the Out-door Poor, Bellevue; Consulting Physician to the Nursery and Child's Hospital, County Branch; Consulting Physician to the Infants' Hospital, Randall's Island. Seventh Edition, thoroughly revised, with Fifty-one Illustrations. Philadelphia: Lea Brothers & Co. 1890. Chicago: A. C. McClurg Co., 117-121 Wabash Ave. Price, cloth, $4.50; sheep, $5.50.

Six editions of this work have been presented to the medical profession. The seventh being in demand, the opportunity was given for a thorough revision of the entire book, of which Professor Smith has so fully availed himself, that not only has the volume been increased to nearly double its former size, but in its revision he has been able to incorporate recent investigations and discoveries pertaining to the bacterial origin of many of the diseases of infancy and childhood—without which it would not meet the present requirements of the profession.

Very properly, in the first hundred pages, the subjects of food, bathing, clothing, sleep and exercise are dealt with, and in a manner highly satisfactory. Diseases of the newborn and constitutional diseases are very fully described, and in addition to the author's views as to their pathology and treatment, citations are freely made from a large number of our most accredited authors bearing upon the affections successively considered. A special feature of the work is the prominence given to diseases of the cerebro-spinal system, while those of the digestive apparatus and of the circulatory system are amply delineated, and methods of treatment are very fully considered.

The careful consideration given to "new remedies" will be helpful to those not yet familiarized with their actions and the conditions in which their uses are indicated.

The present revision gives a greatly added value to the work, and, as in the past, it will continue to be one of our most reliable and helpful treatises on diseases of infancy and childhood.

PAINFUL MENSTRUATION. By FRANCIS HENRY CHAMPNEYS, M.D., M.A., Oxon., etc. Published by H. K. Lewis, London.

This little brochure of nearly 100 pages consists in substance of the Harveian lectures for 1890. The subject is not only an important one but in the author's hands has been developed into one of great interest. Unlike the majority of English authors Dr. Champneys has a succinct and practical style which is a *sine qua non* in medical monographs. The subject of membraneous dysmenorrhœa received considerable attention, several large tables being appended which contain the complete bibliography of this interesting subject. The busy practitioner will find the work a valuable one.

PARKES MANUAL OF PRACTICAL HYGIENE (eighth edition) edited by J. LANE NOTTER, M.A., M.D. Published by P. Blakiston Son & Co., Philadelphia.

This is an old friend in a new garb. The work has been thoroughly revised and brought up to date. The standard character of the work is so universally acknowledged that it is hardly necessary to state that it is among the best works upon practical hygiene that have ever been published.

TRANSACTIONS OF THE 12TH ANNUAL MEETING OF THE AMERICAN LARYNGOLOGICAL ASSOCIATION. Published by D. APPLETON & CO., N. Y.

This little work is a digest of the proceedings of the 12th annual assembly of the American Laryngological Association held in Baltimore, Md., May 29-31, 1890, inclusive, and is certainly suggestive of the enterprise and character of the members of this society—and is well worthy emulation by other medical organizations. Its pages are replete with many well written articles on laryngological and rhinological topics, together with discussions thereon. Its initial article is in substance a very practical address by Dr. Jno. N. McKenzie, president of the society, who gives in outline the objects of the association and shows the practical and great good that has followed the organization. Altogether it may be said that the work can be perused with advantage by both the general practitioner and specialist.

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MEMBERSHIP IN THE AMERICAN MEDICAL ASSOCIATION.

This is obtainable, at any time, by a member of any State or local Medical Society which is entitled to send delegates to the Association. All that is necessary is for the applicant to write to the Treasurer of the Association, Dr. Richard J. Dunglison, Lock Box 1274, Philadelphia, Pa., sending him a certificate or statement that he is in good standing in his own Society, signed by the President and Secretary of said Society, with five dollars for annual dues. Attendance as a delegate at an annual meeting of the Association is not necessary to obtain membership. On receipt of the above amount the weekly JOURNAL of the Association will be forwarded regularly.

SATURDAY, SEPTEMBER 26, 1891.

SOME RECENT RESEARCHES REGARDING GASTRIC DISEASES.

The announcement of a New York publishing house that a translation of EWALD'S last work on gastric diseases is in preparation, is an indication of the growing importance of the teachings the modern German school. We know of only a few instances where the diagnostic methods of EWALD and his followers have been employed in private practice, although in some of our hospitals they have already become an established procedure. Briefly stated, they consist in a withdrawal of some of the contents of the stomach at certain timed intervals, the analysis of these abstracted specimens by specially chosen tests, and in the administration of what are designated as "test meals" which are subsequently to be chemically examined. No small part of the labor involved in the building up of this new system of diagnosis and treatment has been in the selection of trustworthy reagents that may be not too elaborate for ordinary clinical employment. In order to be successful the tests must not only be fairly accurate and demonstrative but they must be capable of easy application. In this manner, a more intimate acquaintance with the gastric juice, especially in its relations to the outflow of its hydrochloric acid component, is obtained. For example, this acid is not secreted at once after the entry of food into the stomach, for during a period of half an hour to fifty minutes after food lactic acid is the only acid present, probably yielded by the carbhydrates and meat ingested. Hydrochloric acid then appears and the two acids coexist for a time, but hydrochloric acid should be the only one present from ninety minutes to two hours after ingestion. It is in that period that gastric digestion proceeds most actively, and after that function is performed the acid is not present in the stomach. The flow of hydrochloric acid may be retarded or hastened by the character of the meat taken; the carbhydrates, for instance, when in excess tend to repress its secretion, or a meal of cooked albumen only may cause it to appear as early as fifteen minutes after ingestion. With a mixed diet this acid will appear within fifty minutes, and will remain for two hours or longer in proportion to the size of the meal and the amount of gastric function called into exercise. The stomach should be empty three to four hours later, or five to six in all, although the health-limits vary greatly. Longer than six hours is nearly always beyond the period of changes other than those that are fermentative in part, at least; and after seven hours those changes only are observed. The "test-meal" may be either a breakfast, as preferred by JURGENSON, or a dinner as practiced by VON SOHLERN, and the time for collecting the gastric contents may extend from two hours to three and half hours after the meal. Milk is seldom used, as it has the property of mystifying results by itself combining with hydrochloric acid. The meal may consist of a little weak tea with bread and butter, and at times an egg. When the desired time has arrived for withdrawing the gastric specimen, a soft rubber nasal tube is passed either through nose or mouth into the stomach. The patient should be in the recumbent posture with head turned downwards; pressure with the hand is then made over the patient's stomach and he is directed to cough. Following this procedure—to be repeated if necessary—there flows through the tube some of the gastric fluid, which is collected in a flask for examination. VON JAKSCH recommends the use of the unfiltered fluid, but filtration is more commonly employed. The acidity of the filtrate—when the latter course is chosen—is determined by the reaction obtained by the addition of phenol-

phthalein and sodium hydrate in certain known proportions which enable the results to be read off in terms of hydrochloric acid.

The test for lactic acid is generally by means of UFFELMAN'S reagent of liquor ferri perchloridi with carbolic acid. The reactions obtained from these tests, from GÜNZBERG'S phloroglucian-vanillin test and from D. J. HAMILTON'S modification of LEO'S test for free acid are summarized in an article by DR. JOHN MICHELL CLARKE of Bristol, in the *Medico-Chirurgical Journal* of that place. The use of EWALD'S salol test has lost some of its currency within the past year, but it is still regarded as one of the useful means for approximating the digestive period. Salol is not changed in the stomach, but it is broken up in the duodenum into phenol and salicylic acid, and this latter passes without delay into the urine, giving the characteristic deep purple coloration on the addition of perchloride of iron. The argument of EWALD was that the time of its detection in the urine gauged the motor power of the stomach, but this time is subject to some variation. So that HABER states the test in another way; that is, he would formulate the gastric mobility from the time of the disappearance of the salol reaction from the urine. Normally the salicylic acid is no longer discoverable twenty-six hours after the meal, whereas in cases of impaired power it continues to respond to the iron test from thirty to thirty-six hours. The practical application of the knowledge obtained from these constantly improving lists of tests is of wide bearing both to dyspeptic functional difficulties and to organic lesions, such as dilatation of the stomach, gastric ulcer and carcinoma. As between gastric ulcer and cancer the test for hydrochloric acid is considered to have important differential weight, for according to our present light, that acid is generally absent in the latter affection; while in the former it is always present and is, as a rule, of increasing or increased secretion. KOLLMAR has recently pointed out in the *Berliner Klinische Wochenschrift*, that a negative reaction lacks several points of being pathognomonic of gastric cancer, since that reaction may be yielded in cases of persistent fever, of œsophageal and duodenal cancer, of amyloid degeneration of the gastric mucosa, of poisoning by acids, and not infrequently in catarrh from atrophy. A temporary absence of hydrochloric acid may occur in dilatation of the organ, but the acid tends to reappear after a repeated washing out of the stomach. So that, if the exceptions be borne in mind, the absence of hydrochloric acid is a strong diagnostic aid in cases where the existence of cancer is uncertain, but seems probable from the concomitant condition. In eight cases of cancer, observed by DR. CLARKE, in which he examined the gastric contents several times, in each case the acid was absent every time the examination was made. In one case, of especial interest, from the fact that the gastric walls were not the subject of extensive infiltration, the acid was not present, but the writer is not yet able to declare that the early stages of gastric carcinoma are marked by the negative test.

It is not contended for these methods of diagnosis that every case of dyspepsia should be submitted to its somewhat complicated ritual, but it will be a relief to not a few of our practitioners to observe the symplifying of the tests employed in the prospect of the utilization of some of them in difficult and rebellious patients and those resistant to ordinarily successful plans of treatment. These new methods become peculiarly acceptable where neoplasm or ulcer becomes suspected, or as KOLLMAR has shown can take place, where the type of the lesion changes. Cancer may, although infrequently, develop in the cicatrix of a healed ulcer, a succession noted by that writer not less than fourteen times. As a practical point, DR. CLARKE offers in the conclusion of his paper the suggestion that the soft india-rubber tube only be used, in entering the stomach, without the stiffened end, such as is sold under the name of the JAQUES patent, which answers the purpose perfectly well and avoids the risk of doing an injury even in cases of ulcer.

ALIIS INSERVIENDO CONSUMOR: OR FOUR DECADES IN PRACTICE.

To one who, having borne the burden of the day, can sit down and write in jubilant strain of his professional life, his fellows and his juniors are constrained to listen. Such an one is DR. WILLIAM W. PARKER, of Richmond, Va., and President of his State Medical Society, and he is the author of a most readable little address before the alumni of his medical college, delivered in

April last. His subject was "Forty Years a Doctor," and it wavers like a pendulum between the joys and sorrows of his professional life, but joyous at the end in the consciousness of a race well run, and of much good done to others. Two score years of service finds him saying to his juniors: "Do not think that the bad treatment you have received is a lot exceptionally hard. All your predecessors, without one exception, have had the same hard fate. Nevertheless, I advise you to love all your patients from the start; it will make your work easier and more pleasant. Besides, it is your duty to trust, though you may be deceived." DR. PARKER evidently has that philosophy and kindly temperament which led a distinguished physician and magistrate of Amsterdam to adopt for his symbol the burning lamp, with the motto *Aliis inserviendo consumor*. This was NICHOLAS TULPIUS, the central figure in REMBRANDT'S picture of the anatomical lesson. Gratitude may come to the physician for his self-consuming labors—"for there are those who gave us their confidence in early life and maintained it to the end, who are indeed jewels"—but that sentiment is not to be counted upon. Concerning the too frequent tendency to change from one physician to another, DR. PARKER says, "Many lives are lost yearly by a change of doctors." Another expression of his is, "The cooler you are, the wiser and safer you are; a highly nervous man is not fit for a doctor, nor a lazy man, nor yet a heartless man. Not to be bold and quick in emergencies is sometimes death to your patient." To the recent graduate he gives this advice: "So soon as you get your diplomas, get also a copy of the Code of Ethics of the American Medical Association, and carefully study it. It will teach you how to behave towards your medical brethren. I find that there is more need of the Code now than there was forty years ago. We are governed by the highest ethical code of any profession known to the world."

Many another striking remark occurs—too numerous for further quotation here—agreeable to all sensible minds, provided that they have not taken a prejudice in the opposite direction. Some of DR. PARKER'S observations are not wanting in eloquence, especially his little story about the largest fee he ever got, namely, the heartfelt thanks of a little orphan Irish girl of eight years of age: it is a hint for a great medical picture. She simply said, "Thank God, here comes the doctor!" a cry which, the Doctor thought, went as straight to Heaven as that of any priest or seer, and he felt that even his name had been pronounced aloud and honored in the courts of Heaven.

Since the above was written another small pamphlet of DR. PARKER has fallen under our notice. It is from the transactions of the Virginia Medical Society, 1890, and treats of the rise and decline of homœopathy. One short paragraph we desire to select from it, for the purpose of illustrating the happy way our author has of touching up the subjects of his choice. He says: "It is very strange that HAHNEMANN did not see the defect in his new system, *since it excluded surgery, the most brilliant and useful branch of the medical art.* It is inseparable from the practice of medicine. No man can be a good surgeon who does not understand the action and use of drugs."

In conclusion, we may remind our readers of still a third paper by Dr. PARKER, published in these columns on June 6, an ingenious essay on the instinct of animals, taking side against the Darwinian argument about the "missing links" between human and animal intelligence. The bent of mind and flow of language seem to make literary work congenial to DR. PARKER, and if we are correct, we would encourage him to keep his pen ready to dip into the inkstand, as he from time to time conjures up the interesting scenes of the forty years of a doctor's life.

"AUGUST TWENTY-NINTH, THE POET'S DAY."

This is DR. HOLMES' day. His eighty-second natal day was quietly and comfortably celebrated at his home, and kindly remembered in hundreds of journals throughout the land. Some of the remarks of the editors were over-kind and tended to become hyperbolic. What shall we say of such an effort as the one which represented that if HOLMES' time of departure from earth were to come, "Death will knock off work and cling to HOLMES' coat-tails, even though he knows that he will be stopped at the gate," but he will hang around on the outside, in the bare hope that HOLMES will not be satisfied with the heavenly choir, and will possibly like to return to earth again? HOLMES himself speaks more sensibly

and more to the purpose when he says: "My health is excellent. I am very well and very happy. My eyesight troubles me somewhat, so that I am very glad to avail myself of the services of a secretary, and I am a little troubled at times to recognize my friends and acquaintances on the street. Perhaps some of them may have thought that I have intended to cut them; but it is only a little trouble with my eyes which causes me to pass them. Other than this I have no physical trouble."

THE NATIONAL ASSOCIATION OF MILITARY SURGEONS OF THE NATIONAL GUARD OF THE UNITED STATES.

We have the pleasure of welcoming another National organization of medical men. The medical officers of the militia of the several States have during the past few years grown into the habit of forming State societies among themselves. But it occurred to PROF. NICHOLAS SENN, Surgeon-General of Wisconsin, that the time had come to unite the medical officers of the militia into a National Organization. Accordingly, on his call, representatives from sixteen States met in Chicago September 18, for organization. In the morning the gentlemen attended a brilliant clinic, held by PROF. SENN, at the Presbyterian Hospital, a gunshot wound very properly forming the subject-matter of the clinic. At noon, to the number of sixty, at the Union Club, they sat down to a delightful lunch, tendered them by the Faculty of the Chicago Policlinic, after which they marched, as befitted their military character, to the Chicago Policlinic, whose handsome amphitheatre, appropriately decorated, became the theatre of their deliberations. In the evening, PROF. SENN'S residence was the scene of a brilliant reception given in honor of the military guests.

All organizations of medical men are beneficial to the profession, if for no other reason than that they bring physicians together, and thereby broaden them and cultivate better feelings among them. In addition, each special organization has its special uses. The advantages arising from the present organization are peculiarly its own, and it will secure improvements which can be obtained through no other channels. The *personnel* of the militia surgeons has, in the past, been too closely connected with politics to be above reproach. Such a state of affairs will be largely corrected through this organization, for it will attract to itself only the competent men of the service. It will foster the study of military surgery, altogether too much neglected. It will emphasize the importance of the medical art to the State.

We were pleased to note the presence of medical officers from the regular army at the organization of this Society. Several very interesting and valuable papers were read before the Society, one of which, that of GEN. BRIANT, of New York, appears in our issue of this week.

The Association elected the following officers: GEN. SENN, President; MAJ. NELSON H. HENRY, of New York, First Vice-President; COL. E. CHANCELLOR, of Missouri, Second Vice-President; COL. MATTHEWS, of Illinois, Secretary; LIEUT. RALPH CHANDLER, Corresponding Secretary; and COL. T. T. CRANE, of Colorado, Treasurer.

St. Louis was selected as the next place of meeting.

PRELIMINARY MEDICAL INSTRUCTION.

A plan for guiding the work of the medical student during the year under a preceptor, before entering college, has been adopted by the College of Physicians and Surgeons of Chicago, which appears worthy of a wider employment. The students are matriculated in the same manner as are the resident students, and are required to make weekly reports of progress and pass satisfactory examinations. The subject-matter of the course, as will be seen from the following, is particularly commendable:

COURSE OF STUDY.—The study of biology and physics is looked upon by the faculty as the most desirable foundation for the study of medicine and surgery. It has not been thought advisable to duplicate the resident course, but rather to supplement it. The following outline will give an idea of the plan of study as prepared by the faculty:

1. BIOLOGY.—*a.* Invertebrate Anatomy and Physiology.

The lessons during the first month comprise the study of the fresh or salt water clam and the craw-fish or lobster. Dissections, drawings, and four written examinations.

b. Vertebrate Anatomy and Physiology.

The next three months will be occupied in the study of the frog, the hen and the rat or the rabbit, and other accessible vertebrates. Dissections, preparations, drawings and twelve written examinations.

c. Anatomy of Plants and Methods of Histological Study.

The remainder of the year will be occupied in the study of the physiology of unicellular plants, germination, methods of histological study, and such other subjects as will be suggested in the progress of the initial course.

2. PHYSICS.—*a.* The reading of a suitable text-book on physics, weekly examinations during the whole course.

b. Experimental work which can be carried out at home with the material accessible in any village and with little expense.

3. LATIN.—It is recommended and expected that every student undertake at the same time the study of Latin under a competent teacher.

THE INFECTIOUS DISEASES INSTITUTE AT BERLIN.

The new institute, which is designed to be under the direction of DR. KOCH, at Berlin, was only opened August 17, and the first six patients were brought in that same evening. PROFESSOR BRIEGER has been appointed over the clinical department, and DR. PFEIFFER over the scientific laboratory. DR. BEHRING is among the assistants. The nursing has been assigned to the Brandenburg Sisterhood, a body ignoring all sectarian distinctions.

SOCIETY PROCEEDINGS.

Philadelphia County Medical Society.

Stated Meeting September 9, 1891.

THE PRESIDENT, JOHN B. ROBERTS, M.D., IN THE CHAIR.

DR. EDWARD JACKSON read a paper on

AN OPHTHALMOSCOPE FOR GENERAL USE.

It would be a great gain to both doctors and patients if a much larger proportion of those who class themselves as general practitioners were able, when the need for it arose, to use the ophthalmoscope. One who has no practical experience with it cannot even properly appreciate what he reads or hears of ophthalmoscopic appearances. And there are in the aggregate many cases in which the progress of general disease could be far more intelligently followed by its routine use, without entering upon debatable ground or attempting to use symptoms of doubtful significance.

With the ophthalmoscope, as with other instruments, the cheap instrument is very apt to lack certain important features, and the costly instrument is mainly confined to the possession of those who mean to use it a good deal. It took many years to adapt the microscope to the needs of clinical work, to rid it of mechanical stages and other mechanical nuisances, and perfect its really essential parts. And the ophthalmoscope must pass through a similar pruning and adaptation before its use can be truly popular and common in the profession. For some years I have been working at this problem, and herewith present my results.

The ophthalmoscope for general use must, First, be one in which the difficulties of using the instrument are as far as possible overcome. Second, it must be one that will be as satisfactory as any of the best instruments for any case that is likely to be encountered. Third, it must be cheap. For this one I have no hesitation in claiming that with it the fundus of the eye can be seen as readily as with any ophthalmoscope heretofore made; for all practical purposes as a refraction ophthalmoscope, its lens series is complete; it can be bought for eight dollars.

It is easy to see through, because the mirror, which is circular, 30 mm. in diameter, tilts each way to the best angle, at about 25 or 30 degrees; it has a shorter canal, and wider lenses than have most first-class refraction ophthalmoscopes; each lens is retained in exact position by a spring stop; and all the lenses or combinations of lenses are available without taking the instrument from the eye.

The lens series is furnished by combinations of six lenses in two slides, and consists of convex 1, 2, 3, 4, 6, and 12 dioptres; concave 1, 2, 4, 6, 10, and 22 dioptres. To appreciate this series one must bear in mind the degrees of ametropia that are commonly encountered in practice. Among 4000 eyes, the statistics of which I have published in the *Transactions of the American Ophthalmological Society* for 1889, only one eye had hyperopia of 13 dioptres, and only one eye had myopia of 23 dioptres.

The series does not contain half-dioptres, which are given in all the larger refraction ophthalmoscopes: but a very prominent ophthalmologist has recently said that he had the half-dioptre lenses taken out of his large instrument (Noyes's modification of Loring's) as comparatively worthless. Under especially favorable conditions there are a few ophthalmoscopists who have constant and extensive practice with the instrument who can, I believe, measure refraction with a little more exactness with half-dioptre lenses than they could with only whole-dioptre intervals. But the ophthalmoscopists that can do this are comparatively few, the cases in which they can do it are few, and the practical value of doing it is utterly insignificant. For those who are not in special practice half-dioptre intervals are always a delusion and a snare, a hindrance,

a cause of inaccuracy. They are, therefore, discarded.

Although the statistics above referred to show that in but one eye in 40 of those encountered in practice is the degree of ametropia over 6 dioptres, to one not very familiar with the properties of lenses the intervals between the stronger lenses of this series may seem too great. Such must be reminded that the effect of every intermediate lens strength may be obtained by slightly varying the distance of the lens and instrument from the patient's eye. Thus the convex 6 dioptre lens acts as such only when placed against the eye, by drawing it back less than three inches it is made to act as a 12-dioptre lens, and within that space will correct any intermediate amount of hyperopia. By withdrawing the 12-dioptre convex lens a little over one inch it takes the place of a 20-dioptre lens. On the other hand, by withdrawing the concave 22-dioptre lens a little over two inches its effect is diminished to 10-dioptres, and in that space every intermediate strength is reproduced. In the same way the withdrawal of the 10 dioptre concave lens to the same distance gives us the 6 dioptre effect.

When this is remembered it is readily seen that any measurement of refraction by strong lenses is utterly untrustworthy unless the distance of the lens from the eye is taken into account; and if it is taken into account, any additional intermediate lenses are quite unnecessary. The above series is sufficient for the direct method in all cases except the very highest myopia, for which the expert ophthalmoscopist is apt to resort to the indirect method as more satisfactory.

To one accustomed to using a disc ophthalmoscope the arrangement of lenses as here in slides will at first seem awkward and confusing, but to one who begins with this instrument, or who has already used an instrument in which the lenses are so placed, it is especially convenient. The convex lenses are all in the back slide, the concaves in the front. One can be used alone, or both slides can be moved at once by the tip of the same forefinger, according to the lens required.

In the focus of the mirror, the size of the sight hole, the blacking of it, the proportioning of the instrument, and its mechanical execution, it is equal to the best ophthalmoscopes now used. It is made by Mr. D. V. Brown, of Philadelphia.

Since this is not my first attempt at the modification of the ophthalmoscope, and another instrument has my name associated with it, perhaps it will prevent confusion if I exercise the right of naming this. And with the idea of giving it a name that shall by a single word indicate the idea of its design for general use, I shall call it the polyclinic ophthalmoscope.

MISCELLANY.

MISSISSIPPI VALLEY MEDICAL ASSOCIATION.—Preliminary announcement of the programme for the seventeenth annual session of the Mississippi Valley Medical Association, to be held in St. Louis, October 14th, 15th and 16th, 1891.

1. "The Toxic Effect of Tobacco Vapor; with Report of Cases." W. Carroll Chapman, M.D., Louisville, Ky.

2. "The Management of Chronic Diseases." S. Baruch, M.D., New York, N. Y.

3. "The Ethics of Curing Consumption and other Chronic Diseases." John Ashburton Cutter, M.D., New York, N. Y.

4. "The Treatment of Typhoid Fever." Robert C. Kenner, M.D., Louisville, Ky.

5. "The Carbolates." William F. Waugh, M.D., Philadelphia, Pa.

6. "On Degenerative Processes in the Spinal Cord, Consequent upon Constitutional Diseases." Hugo Summa, M.D., St. Louis, Mo.

7. "Iliac Indigestion—Intestinal Dyspepsia—and its Treatment by Antiseptic Agents." Frank Woodbury, M.D., Philadelphia, Pa.

8. "The Influence of Graveyards on Public Health." J. W. Carhart, M.D., Lampasas, Texas.

9. "Rheumatism and Gout in their Casual Relation to Eczema; their Management." A. H. Ohman-Dumesnil, M.D., St. Louis, Mo.

10. "The Value of Epilation as a Dermato-Therapeutic Measure." Joseph Zeissler, M.D., Chicago, Ill.

11. "Gradation of Lenses." Dudley S. Reynolds, M. D., Louisville, Ky.

12. "The Influence of Alcohol on Vision." Francis Dowling, M.D., Cincinnati, O.

13. "Tobacco and Insanity." Ludwig Bremer, M.D., St. Louis, Mo.

14. "The Present Aspect of Cerebral Surgery." Landon Carter Gray, M.D., New York, N. Y.

15. "Forensic Aspect of Bruises and Fractures in the Insane." J. G. Kiernan, M.D., Chicago, Ill.

16. "Amputation of the Scrotum, with report of a Case." B. Merrill Ricketts, M.D., Cincinnati, O.

17. "Observation on Urethral Stricture." G. Frank Lydston, M.D., Chicago, Ill.

18. "The Mechanical Element in Treatment of Compound Fracture." Warren B. Outten, M.D., St. Louis, Mo.

19. "A Report of a Case of Retention of Urine caused by Multiple Urethral Calculi." J. V. Prewitt, M.D., West Point, Ky.

20. "Some Observations on Rectal Surgery in Europe." Leon Straus, M.D., Lonisville, Ky.

21. "A New Method of Diagnosing Obstruction in the Sigmoid Flexure." Jos. M. Mathews, M.D., Louisville, Ky.

22. "Pathology and Surgical Treatment of the so-called Strumous Inguinal Lymphadenitis." L. T. Riesmeyer, M.D., St. Louis, Mo.

23. "The Treatment of Gonorrhœa." E. C. Underwood, M.D., Louisville, Ky.

24. "Extirpation of the Thyroid, with Report of Case." Emory Lanphear, M.D., Kansas City, Mo.

25. "Are Conservative Amputations always in the Interest of the Patient?" Charles Truax, Chicago, Ill.

26. "Sarcoma of the Dorso-Scapular Region — Operation—Recovery." Geo. N. Lowe, M.D., Randall, Kansas.

27. "Mouth Breathing." Eric E. Sattler, M.D., Cincinnati, Ohio.

28. "Empyema of the Superior Maxillary Antrum, with only Nasal Symptoms." Hal Foster, M.D., Kansas City, Mo.

29. "A Superior Remedy for Nasal Catarrh; Campho-Menthol." Seth S. Bishop, M.D., Chicago, Ill.

30. "A Case of Reflex Aphonia; Demonstrated to be due to Pressure of the Middle Turbinated against the Septum Nasi." Hanau W. Loeb, M.D., St. Louis, Mo.

31. "Importance of Recognizing a Temporary Rachitic Condition in Infants." John A. Larabee, M.D., Louisville, Ky.

32. "A Pathological Study of Pelvic Inflammation in Women." Wm. Warren Potter, M.D., Buffalo, N. Y.

33. "Observation on the Management of Uterine Tumors." Chas. A. L. Reed, M.D., Cincinnati, Ohio.

34. "Complications Following Abdominal Section." Rufus B. Hall, M.D., Cincinnati, Ohio.

35. "Obstetric Dispensaries; their Management." L. A. Berger, M.D., Kansas City, Mo.

36. "Surgical Treatment of Peritonitis." A. V. L. Brokaw, M.D., St. Louis, Mo.

37. "Temperature no Guide in Peritonitis." H. C. Dalton, M.D., St. Louis, Mo.

38. "Some Monstrosities at and after Birth." David S. Booth, M.D., Belleville, Ill.

39. "Oöphorectomy *vs.* Donothingism." Willis P. King, M.D., Kansas City, Mo.

40. "A Successful Gastrostomy for Impermeable Stricture of the Cardiac End of the Œsophagus; Subsequent Dilation of the Strictures." Arch. Dixon, M.D., Henderson, Ky.

41. "The Nervous Equation of Pelvic Inflammation." Geo. F. Hulbert, M.D., St. Louis, Mo.

42. "Hysterectomy for Cancer." J. M. Richmond, M.D., St. Joseph, Mo.

43. "The Application of the Obstetrical Forceps." John Bartlett, M.D., Chicago, Ill.

44. "Appendicitis." W. H. Link, M.D., Petersburg, Ind.

45. "Phthisis; Beginning its Treatment." Edward F. Wells, M.D., Chicago, Ill.

46. "The Hydrotherapy in Typhoid Fever." H. H. Middlekamp, M.D., Warrenton, Mo.

47. "Hystero-Epilepsy." Howell T. Perching, M.D., Denver, Colo.

48. "Importance of Definite Strength in Mineral Waters." Geo. F. Hulbert, M.D., St. Louis, Mo.

49. "The Time and Place for Stimulants." By Chas. H. Hughes, M.D.

Regular classified programme will be issued and sent to members and the profession generally at an early date. Titles of papers must be sent to Chairman of Committee of Arrangements before October 5, 1891.

I. N. Love, M.D.,
Chairman Committee of Arrangements,
Grand and Lindell avenues, St. Louis.

E. S. McKee, M.D., Secretary.
C. H. Hughes, M.D., President.

CONSTITUTION AND BY-LAWS OF THE MISSISSIPPI VALLEY MEDICAL ASSOCIATION.

Name.

Article I. This Association shall be known as the Mississippi Valley Medical Association.

Object.

Art. II. The objects of this Association are to foster, advance and disseminate medical knowledge; to uphold the honor and maintain the dignity of the medical profession.

Membership.

Art. III. Membership in this Association shall be limited to those members of the profession of medicine who acknowledge allegiance to the American Medical Association by signing its Code of Ethics. No individual who shall be under sentence of expulsion, suspension or disability from any recognized State, County, District or Local Medical Society, shall be eligible to membership in this Association until said disability shall have been removed. All applications for membership shall be referred to the Committee on Credentials. The annual dues shall be $3, payable in advance.

Meetings.

Art. IV. The regular meetings of this Association shall be held annually. The place, with the time of meeting for each successive year, shall be determined by a vote of the Association.

Officers.

Art. V. The officers of this Association shall be a President, two Vice-Presidents, a Permanent Secretary, Treasurer, an Executive Committee consisting of the President, Vice-Presidents, Permanent Secretary, Treasurer, and the Chairman of the Committee of Arrangements; a Committee on Credentials consisting of five members, who may call to their assistance one member from each State represented at the meetings; a Judicial Council consisting of seven members, three of whom shall serve one year, and four for two years alternately. A Committee on Nominations which shall consist of one member from each State represented, shall be selected by the President on the second day of each annual meeting. It shall meet and nominate officers for the ensuing year, all of whom shall be elected on the last day of the annual meeting.

Duties of Officers—President.

The President shall preside at the meetings of the Association, and perform such other duties as parliamentary usage and the vote of the Society may require.

Vice-President.

The Senior Vice-President, or in his absence a Junior Vice-President, shall assist the President in the performance of his duties, and in the absence of the latter, or at his request, shall officiate in his place.

Permanent Secretary.

It shall be the duty of the Secretary to keep a list of the members of this Association with their addresses, to give notice of the meetings of the Association, to keep a record of its proceedings, to conduct its business correspondence, and perform such other duties as may be required.

Assistant Secretary.

It shall be the duty of the Assistant Secretary to assist the Secretary in the performance of his duties, and in the absence of the latter, those duties shall devolve upon him.

Treasurer.

It shall be the duty of the Treasurer to receive and disburse all moneys belonging to the Association. He shall pay out no money except on warrants signed by the presiding officer.

Committee of Arrangements.

The Chairman of the Committee of Arrangements may choose as many assistants as he may deem best, and appoint an assistant secretary, besides making all arrangements for annual meetings.

Changes in the Constitution.

ART. VI. This Constitution shall not be altered or amended, except the proposed alteration or amendment be first read on two consecutive days of a regular annual session of the Association and receive the approval of a three-fourths vote of all members present.

BY-LAWS.

ARTICLE I. The annual session shall be called to order by the Chairman of the Committee of Arrangements. The President on taking the chair shall call for the reading of the minutes of the previous meeting, and on the morning of each succeeding day of the annual session the following order of business shall be observed after the reading of the minutes.

1. Announcements of the Committee of Arrangements.
2. Report of the Secretary.
3. Communications from other Societies.
4. Reports of Committees. They shall be called in the following order. Committee on Credentials; Executive Committee; Judicial Council; Committee on Nomination during morning session of last day only.

ARTICLE II.

1. The provisions of Article 1 of these By-laws shall apply to the first thirty minutes of each morning session.
2. No essay or report shall be permitted to occupy more than twenty minutes without consent of the Committee of Arrangements.
3. Discussion of papers or reports presented shall be limited to ten minutes for each speaker and no member shall speak a second time except with the unanimous consent of the Association.
4. No essay, report or other communication presented to this Association shall be published in any but the regular medical journals without the consent of the Executive Committee.
5. All questions of debate shall be decided in accordance with Cushing's manual of parliamentary law.

ARTICLE III.

1. All questions of ethics and differences between members shall be referred without debate to the Judicial Council whose report shall be final.
2. All questions of eligibility for membership shall be determined by the Committee on Credentials.
3. No person shall be allowed to participate in the deliberations of this Association who has not registered as a member and paid all dues.

ARTICLE IV.

These by-laws may be amended by a two-thirds vote of all the members present, provided the proposed amendment shall be made in writing and read aloud to the Association on two consecutive days at any annual meeting.

INVITED TO ATTEND THE UNVEILING.—The Secretary of the Illinois Army and Navy Medical Association has issued a call for the association to meet at the Grand Pacific Hotel, Chicago, the morning of Oct. 7 to participate in the ceremonies incident to the unveiling of the Grant monument. The invitation is also extended to all the medical men who served with the army and navy during the war to meet with the Illinois Association.

WANTED.—No. 4, vol. iii, July 26, 1884. Nos. 2 and 3, vol xvi, Jan. 10 and 17, 1891. No. 3, vol. xvii, July 18, 1891. Will pay a liberal price for a few copies of each of the above numbers. Address this office.

LECTURES ON DISEASES OF THE URINARY APPARATUS are to be delivered by Dr. J. W. S. Gouley every Tuesday at 8:30 P.M., at the Mott Memorial Hall 64 Madison avenue.

These lectures, supplemented by clinics at Bellevue Hospital every Saturday at 3 P.M., will be free to the profession and students of medicine.

Official List of Changes in the Stations and Duties of Officers Serving in the Medical Department, U. S. Army, from September 12, 1891, to September 18, 1891.

Asst. Surgeon Louis W. Crampton, U. S. A., is relieved from duty at Ft. Sheridan, Ill., and ordered for duty at Ft. Townsend, Washington, relieving Asst. Surgeon James C. Worthington, U. S. A. Asst. Surgeon Worthington, on being relieved, is ordered to Ft. Thomas, Ky., for duty at that station, relieving Asst. Surgeon Geo. M. Wells, U. S. A. Asst. Surgeon Wells, on being relieved from temporary duty at Ft. Thomas, Ky., is ordered to San Carlos, Ariz., for duty.

Asst. Surgeon Geo. M. Wells, U. S. A., relieved from duty at Columbus Bks., O., and ordered to Ft. Thomas, Ky., for temporary duty, relieving Asst. Surgeon Henry I. Raymond, U. S. A. Asst. Surgeon Raymond, on being relieved, will report to the commanding officer, Ft. Robinson, Neb., for duty at that station.

Surgeon Charles L. Heizmann, U. S. A., is relieved from duty at Ft. Clark, Tex., and ordered to Ft. Douglas, Utah, relieving Surgeon William D. Wolverton, U. S. A., who, upon being relieved, will proceed to Ft. Schuyler, N. Y., and report for duty at that station.

Col. Edward P. Vollum, Chief Medical Purveyor U. S. A., retirement from active service is announced. S. O, 211, A. G. O., Washington, September 11, 1891,

Surgeon David L. Huntington, U. S. A., leave of absence extended to include September 30, 1891.

Official List of Changes in the Medical Corps of the U. S. Navy, for the Week Ending September 19, 1891.

Medical Inspector A. A. Hochling, ordered as member of Medical Examining Boards.

Surgeon G. E. H. Harmon, ordered to the U. S. S. "Yorktown."

Surgeon Jno. C. Boyd, detached from the U. S. S. "Yorktown" and granted leave.

Medical Director F. L. DuBois, detached from Navy Yard, Portsmouth, N. H., and wait orders.

Surgeon J. G. Ayers, detached from U. S. S. "Wabash," and to Navy Yard, Portsmouth, N. H.

P. A. Surgeon F. J. B. Cordeiro, ordered to the U. S. S. "Wabash."

P. A. Surgeon O. D. Norton, ordered to the U. S. S. "Petrel."

P. A. Surgeon E. H. Marsteller, detached from U. S. S. "Petrel," and granted leave.

Surgeon Jno. H. Hall, ordered to appear before Retiring Board.